Mathematics

4

1+2 =

1+1

triangle

2+2 =

2

5

small

big

rectangle

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PREFACE

The Sindh Textbook Board is an organization charged with the preparation and publication of textbooks in the province of Sindh. Its prime objective is to develop and produce textbooks which are conductive to equip the new generation with the knowledge and acumen to prepare them to face the challenges of the rapidly changing environment. In this age of knowledge explosion and development of technology not witnessed in the human history, efforts have to be made to ensure that our children do not lag behind. The Board also strives to ensure that Universal Islamic Ideology, culture and traditions are not compromised in developing the textbooks.

To accomplish this noble task, a team of educationists, experts, working teachers and friends endeavor tirelessly to develop, text and improve contents, layout and design of the textbooks.

An attempt has made in this textbook to provide horizontal and vertical integration. The efforts of our experts and production personnel can bring about the desired results only if these textbooks are used effectively by teachers and students. Their suggestions will help us in further improving the qualitative contents of textbooks.

Chairman
Sindh Textbook Board

NUMBERS

1.1 ROMAN NUMBERS

Read and write roman numbers up to 20

We have learnt numbers up to 1000 which are Hindi Arabic numbers. Roman numbers were used in ancient Rome. These are still in use in different ways.

Roman numbers are seen on the dials of watches and clock towers in big cities. Sometimes these numbers are also used in books and examination papers.

Roman numbers from 1 to 20 are based on the following symbols.

Value	Symbol
1	I
5	V
10	X

Read Roman numbers from 1 to 20.

Arabic Numbers	Roman Numbers		Hindi Arabic Numbers	Roman Numbers	
	Capital	Small		Capital	Small
1	I	i	11	XI	xi
2	II	ii	12	XII	xii
3	III	iii	13	XIII	xiii
4	IV	iv	14	XIV	xiv
5	V	v	15	XV	xv
6	VI	vi	16	XVI	xvi
7	VII	vii	17	XVII	xvii
8	VIII	viii	18	XVIII	xviii
9	IX	ix	19	XIX	xix
10	X	x	20	XX	xx

There is no Roman number to represent zero.

Teacher's Note Teacher should develop Roman numbers from card. He/she should also make groups of students and engage them in making Roman numbers equivalent to given number up to 20.

Rules for writing Roman Numbers

You can see that while we are writing 4 in Roman, we do not use IIII to represent 4.

Rule 1. The numerals I and X can be repeated upto three times only.

For example: 3 = III , 20 = XX

Rule 2. Writing a smaller numeral to the left of a Roman Numeral will make the number less than that much of its actual numerical value.

For example: 4 = IV , 9 = IX

Rule 3. Writing a smaller numeral to the right of a Roman numeral will make the number that much greater.

For example: 6 = VI , 7 = VII

8 = VIII , 15 = XV

Activity **Complete:**

8 = 5 + 1 + 1 + 1 =	VIII
13 =	
14 =	
16 =	
19 =	

3 =	III
4 =	
6 =	
8 =	
12 =	

Teacher's Note Teacher will explain the rules for writings Roman numbers with more examples.

EXERCISE 1

1. Write down the following in Roman numbers.

5 ________ , 7 ________ , 11 ________ , 9 ________

8 ________ , 16 ________ , 17 ________ , 20 ________

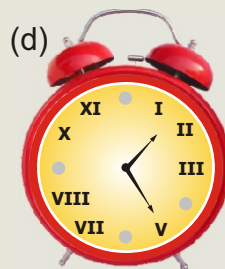
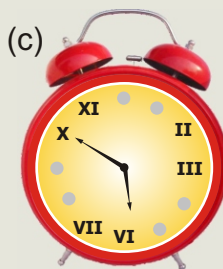
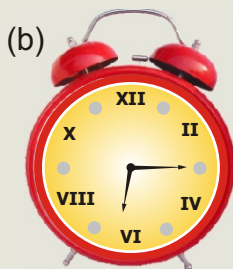
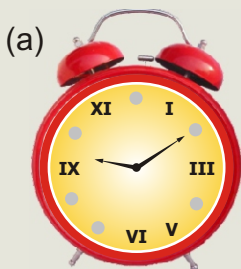
2. Write the following in Hindi Arabic numbers.

III ________ , IV ________ , VI ________ , X ________

II ________ , XV ________ , XII ________ , XIX ________

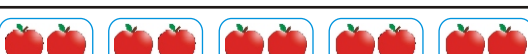
3. Write the missing numbers.

I		III			VI				X
		XIII				XVII			

4. Write the missing Roman numbers of the given clocks.

(a)
(b)
(c)
(d)
5. Match the following.

6. Write Roman numbers from 1 to 20.

1.2 EVEN AND ODD NUMBERS

Identify even and odd numbers up to 99 within a given sequence

ODD NUMBERS

The numbers which are not exactly divisible by 2 are odd numbers.

Odd numbers can not produce pairs of objects with zero remainder.

Numbers	Objects	Even / Odd
1		Odd
2		Even
3		Odd
4		Even
5		Odd
6		Even
7		Odd
8		Even
9		Odd
10		Even

Teacher's Note

Teacher should help the students to identify even or odd numbers by using division by 2 and making pairs of the students and other objects in class.

2, 4, 6, 8, 10, 12, 14, . . . are even numbers.
Even numbers have 0, 2, 4, 6 or 8 at ones place.

1, 3, 5, 7, 9, 11, 13, 15, . . . are odd numbers.
Odd numbers have 1, 3, 5, 7 or 9 at ones place.

Write even or odd numbers within a given sequence

Look at the following chart:

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

The numbers given in red are odd numbers.
1, 3, 5, 7, 9, 11, . . . , 99.

The numbers given in green are even numbers.
0, 2, 4, 6, 8, 10, 12, . . . , 98.

Example 1. **Write even numbers between 3 and 11.**

3, [4], 5, [6], 7, [8], 9, [10], 11

Thus, 4, 6, 8 and 10 are even numbers.

Example 2. **Write odd numbers between 20 and 30.**

20, [21], 22, [23], 24, [25], 26, [27], 28, [29], 30

Thus, 21, 23, 25, 27 and 29 are odd numbers.

Remember that

- Even number + 1 = Odd number
- Odd number + 1 = Even number

- Even + Even = Even
- Odd + Odd = Even
- Even + Odd = Odd

EXERCISE 2

1. Encircle (O) the even numbers from the following.

80 , 83 , 15 , 98 , 67 , 78 , 42 , 27 , 45

2. Encircle (O) the odd numbers from the following.

30 , 38 , 71 , 32 , 64 , 69 , 70 , 11 , 95

3. Write even numbers between 1 to 20.

4. Write odd numbers from 1 to 21.

5. After 30, write first five even numbers.

6. After 50, write first four odd numbers.

7. Write even numbers from 50 to 80.

8. Write odd numbers from 70 to 90.

9. Write (T) for the true and (F) for the false statement.

(i) 23 is an even number. [ ]

(ii) 52 is an odd number. [ ]

(iii) 15 is an odd number. [ ]

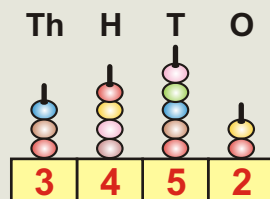
(iv) 30 is an even number. [ ]

1.3 PLACE VALUES

Identify the place values of numbers up to 6-digits

The 4-digit numbers are 1000, 1001, 1002, . . . , 9999.

Example 1: 3452 is a 4-digit number. The place value of each digit of number 3452 is as under.

3452 = 3 thousand + 4 hundred + 5 tens + 2 ones
= 3000 + 400 + 50 + 2
= 3452

Th	H	T	O
3	4	5	2

10000, 10001, 10002, . . ., 99999 are 5-digit numbers.

Example 2: The place value of each digit in 5-digit number is 51650.

51650 = 5 ten-thousand + 1 thousand + 6 hundred + 5 tens + 0 ones
= 50000 + 1000 + 600 + 50 + 0
= 51650

T-Th	Th	H	T	O
5	1	6	5	0

100000 is the smallest 6-digit number.

Example 3: The place value of each digit in 100000 is as under

100000 = 1 hundred thousand + 0 ten thousand + 0 thousand + 0 hundred + 0 tens + 0 ones
= 100000 + 00000 + 0000 + 000 + 00 + 0
= 100000

H-Th	T-Th	Th	H	T	O
1	0	0	0	0	0

Teacher's Note Teacher should help students to revise the concept of place values using the hand-made abacus.

Write the place value of coloured digit in the following numbers

(i)

Th	H	T	O
9	2	4	5

5 ones

(ii)

T-Th	Th	H	T	O
4	8	0	6	2

____

(iii)

H-Th	T-Th	Th	H	T	O
3	4	9	6	7	4

____

EXERCISE 3

1. Fill the boxes.

(i) 5806 = ☐ thousands + ☐ hundreds + ☐ tens + ☐ ones

(ii) 51001 = ☐ ten thousands + ☐ thousands + ☐ hundreds + ☐ tens + ☐ ones

(iii) 12902 = ☐ ten thousands + ☐ thousands + ☐ hundreds + ☐ tens + ☐ ones

(iv) 442609 = ☐ hundred thousands + ☐ ten thousands + ☐ thousands + ☐ hundreds + ☐ tens + ☐ ones

2. Identify the place value of coloured digit number given in boxes:

(i) 24 [3] 6 (ii) 5 [4] 123 (iii) 61237 [8]

(iv) [4] 129 (v) 33 [5] 566 (vi) 7 [2] 081

(vii) [9] 4123 (viii) 567 [8] 12 (ix) 81 [0] 703

3. Complete the following:

No.	Number	H-Th	T-Th	Th	H	T	O
(i)	Six thousand four hundred forty two			6	4		2
(ii)	Twenty Five thousand six hundred thirty one		2			3	1
(iii)	Ninety two thousand two		9		0		2
(iv)	Five hundred twenty three thousand five hundred	5		3			0

Read and write given numbers up to 100,000 (hundred thousand) in numeral and in words

We have already learnt 1-digit, 2-digit and 3-digit numbers

4-digit number

Example: Write 4235 in words.

Solution

Th	H	T	O
4	2	3	5

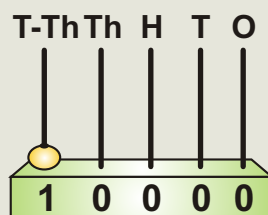
Four thousand two hundred thirty five

5-digit numbers

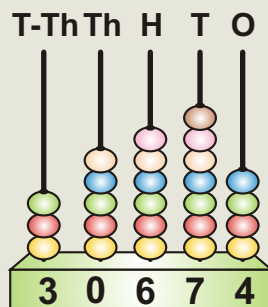
The number after 9999 is 10000
Read as "Ten Thousand"
i.e 9999 + 1 = 10000

10000 is the smallest 5-digit number.

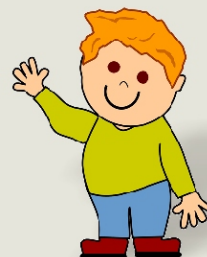
Place Value Chart for 10000

Ten Thousands	Thousand	Hundreds	Tens	Ones
T-Th	Th	H	T	O
1	0	0	0	0

Example: Write 30674 in words

Solution:

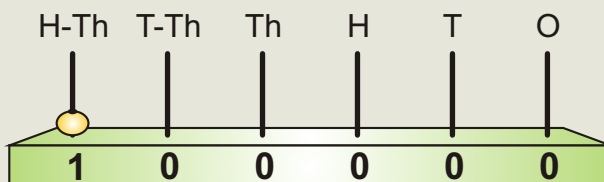
T-Th	Th	H	T	O
3	0	6	7	4

Thirty five thousand six hundred seventy four

6-digit numbers

The number after 99999 is 100000
Read as "Hundred Thousand"
i.e 99999 + 1 = 100,000

100000 is the smallest 6-digit number

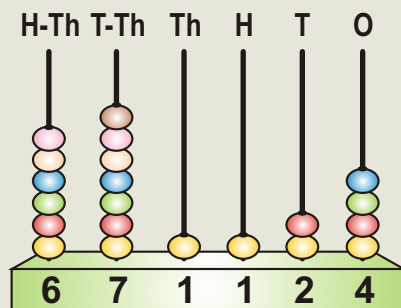
Place Value Chart for 100,000

Hundred Thousands	Ten Thousands	Thousand	Hundreds	Tens	Ones
H-Th	T-Th	Th	H	T	O
1	0	0	0	0	0

Teacher's Note Teacher should do some more examples with the help of only place value chart.

Example: Write 671124 in words

Solution:

H-Th	T-Th	Th	H	T	O
6	7	1	1	2	4

Six hundred seventy eight thousand one hundred twenty four

Look at the pattern.

9	+	1	=	10
99	+	1	=	100
999	+	1	=	1000
9999	+	1	=	10000
99999	+	1	=	100000

100000 is the smallest 6-digit number.

Fill in the blanks:

(1) The greatest 4-digit number is 9999.

(2) The smallest 5-digit number is ________.

(3) The greatest 5-digit number is ________.

(4) The greatest 6-digit number is ________.

EXERCISE 4

1. Read and write each of the following numbers in words.

(i) 4156	(ii) 35678	(iii) 981254	(iv) 5060
(v) 7120	(vi) 356782	(vii) 41524	(viii) 123456

2. Write the following in figures.

(i) Eight thousand four hundred sixty one. ______

(ii) Seventy two thousand six hundred ninety five. ______

(iii) Fifty five thousand one. ______

3. Fill in the blanks:

(ii) Number before 951 is ______

(iii) Number after 25645 is ______

(vi) Number between 5420 and 5422 is ______

4. Continue the patterns.

(i) 2124 , 3124 , 4124 , ______ , ______ , ______

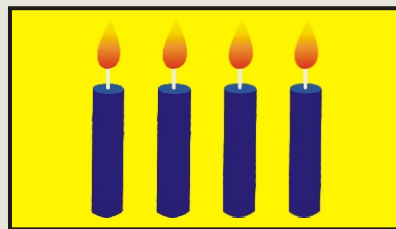
(ii) 51427 , 51437 , 51447 , ______ , ______ , ______

(iii) 123456, 223456 , 323456 , ______ , ______ , ______

1.5 COMPARING AND ORDERING THE NUMBERS

Compare two numbers using symbols <, > and =

Compare the number of the following objects:

How many candles are in blue box?

How many candles are in yellow box?

9 candles are more than 4 candles. We say **9 is greater than 4**

Symbolically, we write as **9>4** . The symbol **">"** stands for "is greater than"

Similarly, 4 candles are less than 9 candles. We say **4 is less than 9**

Symbolically, we write as **4<9** . The symbol **"<"** stands for "is less than"

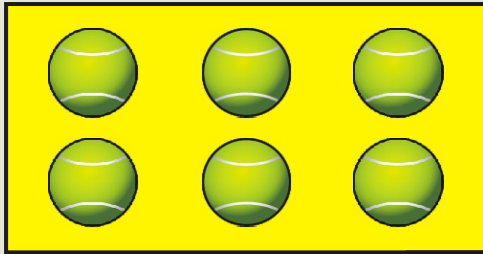
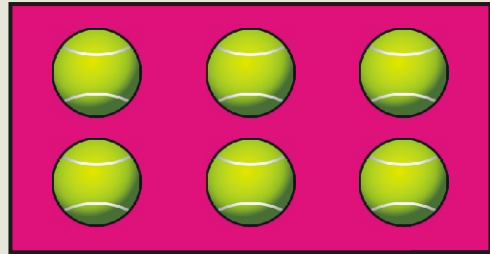
Teacher's Note

Teacher should help the students to compare numbers by using symbols '<' and '>' made from other materials/flash cards.

Use symbols < or >.

(i) 5 > 3 (ii) 20 ☐ 16 (iii) 36 ☐ 47

(iv) 60 ☐ 80 (v) 325 ☐ 300 (vi) 960 ☐ 980

Compare the number of the following objects:

How many balls are there? ☐

How many balls are there? ☐

Both boxes have equal number of balls. We say

Symbolically, we write as 6 = 6 .

Now observe the following examples.

Example 1:

Compare 245 and 6472.

Solution: 245 has 3 digits

6472 has 4 digits

So, 245 < 6742

Example 2:

Compare 5423 and 967.

Solution: 5423 has 4-digits

967 has 3-digits

So, 5423 > 967

Activity **Compare 98 and 123.**

Solution: 98 has ☐ digits

123 has ☐ digits

So, 98 ☐ 123

Activity **Compare 504 and 99.**

Solution: 504 has ☐ digits

99 has ☐ digits

So, 504 ☐ 99

Example 3: Compare 2456 and 3467.

Solution: Both are 4-digit numbers
So we compare first extreme left different digits which are 2 and 3

Here $2 < 3$

So, $2456 < 3467$

Activity **Compare 67835 and 67541**

Solution: Both are ☐ digit numbers

We compare first extreme left different digits

which are ☐ and ☐

Here 8 ☐ 5

So, 67835 ☐ 67541

EXERCISE 5

(1) Fill in the blanks by using symbols <, > or =.

(i)	**245**	☐	**3167**	(ii)	**54231**	☐	**964**
(iii)	**3105**	☐	**3105**	(iv)	**5421**	☐	**5418**
(v)	**672315**	☐	**871237**	(vi)	**120001**	☐	**105552**

(2) Compare the numbers by using symbols <, > or =.

(i)	**542**	and	**6712**	(ii)	**94562**	and	**4392**
(iii)	**6324**	and	**6324**	(iv)	**6421**	and	**6578**
(v)	**94561**	and	**94271**	(vi)	**345671**	and	**345921**

Write the given set of numbers in ascending and descending order.

We have already know the ascending and descending orders in previous class.

Example: Write the given numbers in ascending and descending orders.

35, 12, 30

Solution: In ascending order

12, 30, 35

In descending order

35, 30, 12

EXERCISE 6

1. Write the following numbers in ascending order in given boxes.

(i) 476, 52341, 7881, 5034 ____, ____, ____, ____,

(ii) 2346, 4632, 2354, 1778 ____, ____, ____, ____,

(iii) 43513, 3451, 53314, 41353 ____, ____, ____, ____,

2. Write the following numbers in descending orders in given boxes.

(i) 6432, 3213, 4343, 7120 ____, ____, ____, ____,

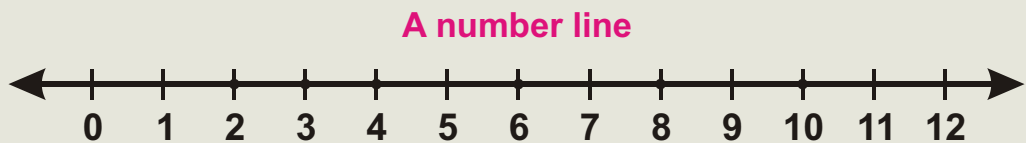
(ii) 49231, 12349, 94321, 31249 ____, ____, ____, ____,

(iii) 120451, 12345, 57401, 10000 ____, ____, ____, ____,

1.6 NUMBER LINE

Represent and identify the value of given number on number line

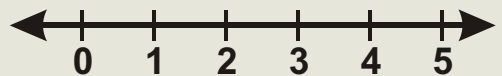
A number can be represented by taking equal distance on a line

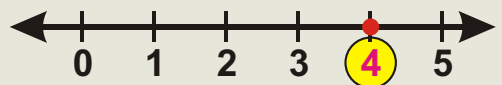
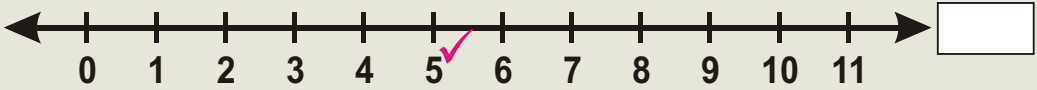
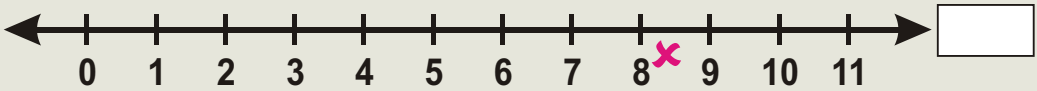
The line on which numbers are represented is called **Number Line.**

Example : Represent a 4 on the number line.

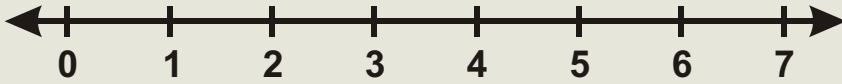
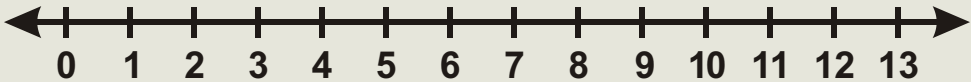
Step 1: Draw a line with scale.

Step 2: Mark points at equal distances.

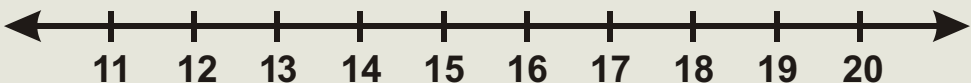
Step 3: Select a point from left to right.

Step 4: Represent numbers in ascending order from starting point.

Step 5: Identify the given number 4.

Teacher's Note Teacher should help the students to identify the value of numbers from the number line.

Which number has been ticked (✓) at the number line.

Which number has been crossed (✗) at the number line.

EXERCISE 7

1. Represent 6 on a number line.

2. Represent the following numbers on given number line.
6, 7, 9, 10 and 12.

3. Fill in the blanks with before and after numbers on the given number line.

4. Encircle the following numbers on the given number line.
14, 16 and 18.

Unit 2

NUMBER OPERATIONS

2.1 ADDITION

We have already learnt how to add numbers up to 3-digit in previous class.

EXERCISE 8

Solve.

10. 27 + 22 =
11. 84 + 101 =
12. 850 + 88 =
13. 104 + 645 =
14. 542 + 227 =
15. 300 + 200 =

Add numbers up to 4-digits (with and without carrying) vertically and horizontally

First we add 4-digit numbers without carrying.

Example 1: Add **5462** and **1234**

Solution: **(i) Vertical method:**

	Th	H	T	O
	5	4	6	2
+	1	2	3	4
	6	6	9	6

Th H T O

Step 1: Add ones
2 ones + 4 ones = 6 ones

Step 2: Add tens
6 tens + 3 tens = 9 tens

Step 3: Add hundreds
4 hundreds + 2 hundreds = 6 hundreds

Step 4: Now add thousands
5 thousands + 1 thousand = 6 thousands

(ii) Horzontal method:

Or **5462** + **1234** = ☐

Th	H	T	O		Th	H	T	O		Th	H	T	O
5	4	6	2	+	1	2	3	4	=	6	6	9	6

Step 1:	Add the ones	2 + 4 = 6
Step 2:	Add the tens	6 + 3 = 9
Step 3:	Add the hundreds	4 + 2 = 6
Step 4:	Add the thousands	5 + 1 = 6

Note: Start from ones. Add ones first, then tens, then hundreds and add thousands in last.

EXERCISE 9

(A) Solve:

(1)
```
  2 5 6 4
+ 1 3 2 1
---------
```

(2)
```
  3 5 7 2
+ 1 2 2 3
---------
```

(3)
```
  7 4 2 5
+ 2 3 5 3
---------
```

(4)
```
  4 6 5 3
+ 4 2 3 3
---------
```

(5)
```
  7 2 4 5
+ 2 4 3 3
---------
```

(6)
```
  2 8 4 7
+ 3 1 5 2
---------
```

(7)
```
  3 6 0 4
  4 2 4 2
+ 0 1 2 3
---------
```

(8)
```
  7 4 6 4
  1 0 1 2
+ 1 4 2 1
---------
```

(9)
```
  5 0 9 3
  2 7 0 4
+ 1 1 0 2
---------
```

(B) Solve the following:

(1) 2215 + 1322 = ☐

(2) 4325 + 3210 = ☐

(3) 4625 + 1234 = ☐

(4) 3624 + 4172 = ☐

(5) 7383 + 2514 = ☐

(6) 4502 + 1224 + 4113 = ☐

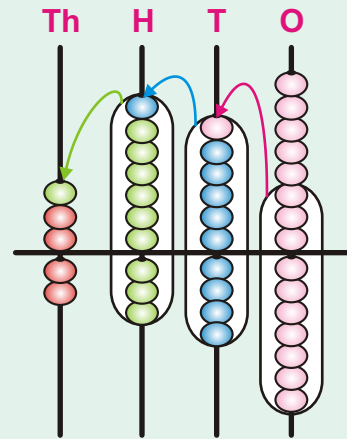
(7) 1102 + 1323 + 1340 = ☐

Now we add numbers up to 4-digits with carrying.

Example 1: **Add 2658 and 2347**

Solution:

	Th	H	T	O
	①	①	①	
	2	6	5	8
+	2	3	4	7
	5	0	0	5

Th H T O

Step 1: Add ones
8 + 7 = 15 ones.
1 ten and 5 ones. Write 5 below ones and carry 1 ten to tens column.

Step 2: Add tens.
1 + 5 + 4 = 10 tens.
Write 0 below tens and carry 1 to hundreds column

Step 3: Add hundreds
1 + 6 + 3 = 10 hundreds.
Write 0 below hundreds and carry to thousands column.

Step 4: Add thousands
1 + 2 + 2 = 5 thousands
Write 5 below the thousands column.

or **2658 + 2347 = 5005**

Teacher's Note Teacher should explain the steps of addition of numbers with carrying up to 4-digit.

Example 2: **Add the following:**

3458, 1322, 2687

	Th	H	T	O
	(1) 3	(1) 4	(1) 5	8
	1	3	2	2
+	2	6	8	7
	7	4	6	7

Step 1: Add ones

8 + 2 + 7 = 17

Step 2: Add tens

1 + 5 + 2 + 8 = 16

Step 3: Add hundreds

1 + 4 + 3 + 6 = 14

Step 4: Add thousands

1 + 3 + 1 + 2 = 7

or **3458 + 1322 + 2687 = 7467**

EXERCISE 10

(A) Solve:

(1)
```
  4 6 2 6
+ 3 3 9 4
---------
```

(2)
```
  3 0 9 7
+ 4 9 7 4
---------
```

(3)
```
  7 3 8 5
+ 2 7 9 8
---------
```

(4)
```
  3 4 8 7
    9 3 2
+ 1 4 7 2
---------
```

(5)
```
  5 7 0 5
  2 8 9 9
+   1 0 2
---------
```

(6)
```
  3 7 8 9
  2 6 6 8
+   2 0 2
---------
```

(B) Add the following:

(1) **4866** and **2154**

(2) **3239** and **2453**

(3) **8370, 3745** and **235**

(4) **2555, 3876** and **1000**

(C) Solve the following:

(1) **3994 + 1089 =** ☐

(2) **3456 + 1268 =** ☐

(3) **2658 + 3846 =** ☐

(4) **3477 + 2955 =** ☐

Add numbers up to 100 using mental calculation strategies

Always remember ones are added to ones and tens are added to tens.

Example 1: Add mentally.

10 + 30	20 + 25
= 10 + 10 + 10 + 10	= 10 + 10 + 10 + 10 + 5
= 40	**= 45**

Example 2:

Can you show way in which Sara can make her sum easier?

Ali has a plan.

12 + 6

12 + 2 + 2 + 2

Write the sum

12 + 2 = 14

14 + 2 = 16

So, 16 + 2 = 18

Sara has another plan.

12 + 6

or 12 + 3 + 3

12 + 3 = 15

So, 15 + 3 = 18

Teacher's Note Teacher may tell the students any other way for mental addition which he/she thinks to be easier.

EXERCISE 11

(A) Add the following numbers by using more than one strategies.

(1) 14 + 5 (2) 15 + 6

(3) 16 + 8 (4) 21 + 11

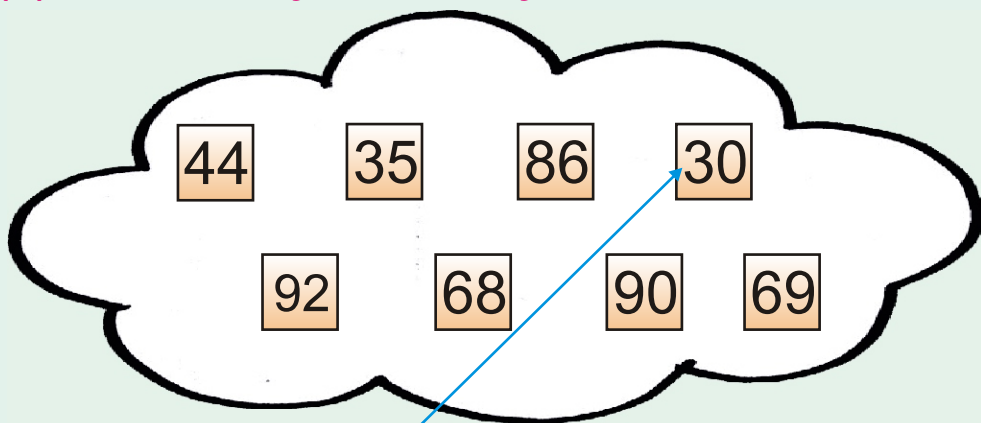
(5) 22 + 6 (6) 11 + 32

(B) Solve mentally.

(1) 25 + 20 = ☐ (2) 22 + 21 = ☐

(3) 46 + 14 = ☐ (4) 32 + 4 = ☐

(5) 42 + 28 = ☐ (6) 54 + 26 = ☐

(C) Add mentally and match your answer.

(1) 10 + 20 = 30 (2) 45 + 23 = ☐

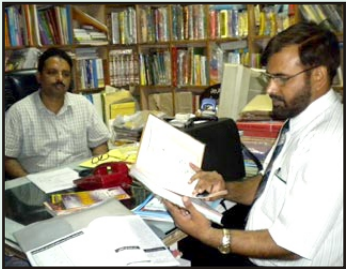
(3) 23 + 12 = ☐ (4) 22 + 22 = ☐

(5) 10 + 50 + 30 = ☐ (6) 18 + 38 + 36 = ☐

(7) 8 + 46 + 32 = ☐ (8) 20 + 13 + 36 = ☐

Solve real life problems involving addition

Example 1:

Aslam sells **3245** note books of Mathematics and **2568** note books of Sindhi in a month. Find the total number of note books he sold in that month.

Solution:

Number of Mathematics note books sold = 3 ①2 ①4 5

Number of Sindhi note books sold = + 2 5 6 8

Total number of note books sold = **5 8 1 3**

EXERCISE 12

(1) Rehana bought two books. One book has 328 pages and other 1034 pages. How many pages in both?

(2) Aashir walk 800m in the morning and 1400m in the evening. How far did he walk altogether?

(3) In a village there are 3321 men, 2843 women and 1822 children. What is the total population of the village?

(4) In a Zoo 3451 visitors visited on Sunday, 2342 on Monday. How many visitors visited in these two days?

(5) Azhar reads a story book. On Saturday, he read 236 pages and on Sunday 142 pages. How many pages he in both days?

(6) In a primary school there are 436 girls and 341 boys. How many students are altogether?

(7) In a city 4798 soft drinks sold on Friday and 3202 on Saturday. How many soft drinks were sold on both days?

Teacher's Note Teacher should give more examples of real life and practice to the students for making such sums.

2.2 SUBTRACTION

We have learnt to subtract numbers up to 3-digits in previous class. Let us revise.

EXERCISE 13

Solve.

(1) $\begin{array}{r} 88 \\ -\ 47 \\ \hline \\ \hline \end{array}$

(2) $\begin{array}{r} 76 \\ -\ 54 \\ \hline \\ \hline \end{array}$

(3) $\begin{array}{r} 639 \\ -\ 38 \\ \hline \\ \hline \end{array}$

(4) $\begin{array}{r} 473 \\ -\ 151 \\ \hline \\ \hline \end{array}$

(5) $\begin{array}{r} 378 \\ -\ 56 \\ \hline \\ \hline \end{array}$

(6) $\begin{array}{r} 297 \\ -\ 74 \\ \hline \\ \hline \end{array}$

(7) $\begin{array}{r} 356 \\ -\ 178 \\ \hline \\ \hline \end{array}$

(8) $\begin{array}{r} 625 \\ -\ 478 \\ \hline \\ \hline \end{array}$

(9) $\begin{array}{r} 243 \\ -\ 184 \\ \hline \\ \hline \end{array}$

(10) $\begin{array}{r} 702 \\ -\ 189 \\ \hline \\ \hline \end{array}$

(11) $\begin{array}{r} 958 \\ -\ 199 \\ \hline \\ \hline \end{array}$

(12) $\begin{array}{r} 342 \\ -\ 155 \\ \hline \\ \hline \end{array}$

Subtract numbers up to four digits with and without borrowing

First we subtract 4-digit numbers without borrowing.

Example: **Solve 6554 – 2313**

Solution:

	Th	H	T	O
	6	5	5	4
–	2	3	1	3
	4	2	4	1

Step 1: Subtract ones.
4 – 3 = 1
write 1 below ones column.

Step 2: Subtract tens.
5 – 1 = 4
write 4 below tens column.

Step 3: Subtract hundred
5 – 3 = 2
write 2 below hundreds column.

Step 4: Now subtract thousands.
6 – 2 = 4
write 4 below thousands column.

or **6554 – 2313**

Solution: **6554 – 2313 = 4241**

Note: Start from ones column first, then tens, hundred and last of all thousands.

Teacher's Note

Teacher should help students to explain the steps of subtraction of numbers up to 4-digits.

EXERCISE 14

(A) Solve:

(1)
$$\begin{array}{r} 4269 \\ -3032 \\ \hline \\ \hline \end{array}$$

(2)
$$\begin{array}{r} 9968 \\ -2734 \\ \hline \\ \hline \end{array}$$

(3)
$$\begin{array}{r} 7695 \\ -3253 \\ \hline \\ \hline \end{array}$$

(4)
$$\begin{array}{r} 8756 \\ -3234 \\ \hline \\ \hline \end{array}$$

(5)
$$\begin{array}{r} 6598 \\ -4386 \\ \hline \\ \hline \end{array}$$

(6)
$$\begin{array}{r} 6976 \\ -2343 \\ \hline \\ \hline \end{array}$$

(7)
$$\begin{array}{r} 5754 \\ -2352 \\ \hline \\ \hline \end{array}$$

(8)
$$\begin{array}{r} 3879 \\ -2346 \\ \hline \\ \hline \end{array}$$

(9)
$$\begin{array}{r} 4589 \\ -3466 \\ \hline \\ \hline \end{array}$$

(B) Solve:

(1) 3455 – 1343 = ☐

(2) 6657 – 3246 = ☐

(3) 3689 – 1345 = ☐

(4) 8672 – 4350 = ☐

(5) 9563 – 5341 = ☐

Now we subtract 4-digit numbers with borrowing.

Example: Subtract 1446 from 3324

	Th	H	T	O
	(2)	(2)	(11)	(14)
	~~3~~	~~3~~	~~2~~	~~4~~
–	1	4	4	6
	1	8	7	8

Step 1: 4 cannot be subtracted from 6.
So, we will take 1 tens from 2 tens.
As 1 ten = 10 ones. 10 + 4 = 14 ones
Then subtract 6 from 14 and write 8 at ones place.

Step 2: After taking 1 ten from 2 tens, 1 ten is left.
Since 4 cannot be taken away from 1 tens.
So, we will take 1 hundred from 3 hundreds.
1 hundred = 10 tens. 10 tens + 1 ten = 11 tens.
Then subtract 4 from 11 and write 7 at tens place.

Step 3: After taking 1 hundred from 3 hundred,
2 hundred left.
Since 4 cannot be taken away from 3 hundred.
So, we will take 1 thousand from 3 thousands.
1 thousand = 10 hundred and
10 hundreds + 2 hundred = 12 hundreds.
Thus, 12 – 4 = 8
Now we write 8 at hundred place.

Step 4: At last after taken 1 thousand from
3 thousands, left 2 thousands. Now subtract
1 from 2 and write 1 in thousands column.

or horizontally we write it as

3324 – 1446 = 1878

Teacher's Note Teacher should explain the steps clearly and also give the sums horizontally and vertically.

EXERCISE 15

(A) Solve:

(1)
```
   6 10 14
 5  7  1  4
-3  5  4  6
-----------
```

(2)
```
  6 6 0 8
- 3 2 4 7
---------
```

(3)
```
  5 4 2 3
- 3 9 8 7
---------
```

(4)
```
  3 9 4 0
- 2 7 3 5
---------
```

(5)
```
  5 7 0 5
- 2 9 3 4
---------
```

(6)
```
  8 0 0 4
- 4 0 3 5
---------
```

(7)
```
  9 0 1 2
- 7 6 5 4
---------
```

(8)
```
  3 4 5 2
- 2 3 2 8
---------
```

(9)
```
  3 3 8 1
- 2 6 4 5
---------
```

(B) Complete the following:

(1) 6572 – 1459 = ☐ (2) 8095 – 7251 = ☐

(3) 4562 – 3571 = ☐ (4) 6559 – 2382 = ☐

(C) Subtract horizontally:

(1) **3254** from **7293** (2) **4972** from **6743**

(3) **2484** from **6512** (4) **5328** from **8672**

Subtract numbers up to 100 using mental calculation strategies

Always remember ones are subtracted from ones and tens are subtracted from tens.

Example:

Subtract the following by using more than one strategies.

(i) $53 - 8$

$= 53 - 3 - 5$

$= 50 - 5 = 45$

Or $53 - 8 = 50 + 3 - 3 - 5$

$= 50 - 5$

$= 45$

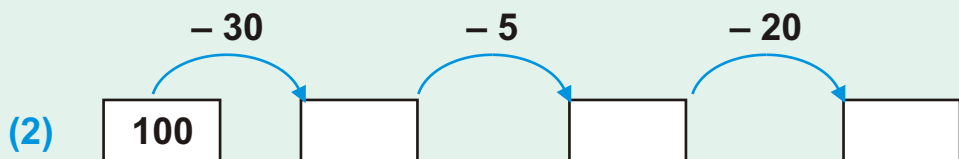
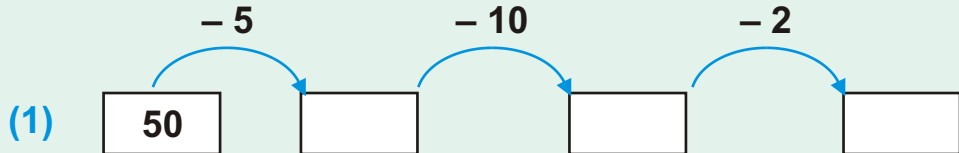
(ii) $72 - 6$

$= 72 - 2 - 4$

$= 70 - 4 = 66$

Or $72 - 6 = 70 + 2 - 1 - 5$

$= 70 - 5 + 2 - 1$

$= 65 + 1 = 66$

Subtract.

EXERCISE 16

1. **Subtract the following numbers by using more than one strategies.**

(i) 15 – 6 (ii) 70 – 8 (iii) 78 – 12

(iv) 89 – 26 (v) 56 – 35 (vi) 93 – 27

Teacher's Note Teacher may tell the students any other way for mental calculation strategies of subtraction.

2. Solve.

i) 47 – 16 = ☐

ii) 19 – 13 = ☐

iii) 50 – 12 = ☐

iv) 46 – 21 = ☐

v) 89 – 40 = ☐

vi) 67 – 14 = ☐

vii) 97 – 18 = ☐

viii) 100 – 87 = ☐

3. Solve the following mentally:

(i) There are **9** birds are sitting on a tree. **3** flew away.
How many birds remain there?

(ii) Abdul Raheem has **10** sheeps and he has **5** cows.
How many more sheeps than cows does he has?

(iii) Sania has **42** kg of rice.
She gave **20** kg to her sister.
How much rice is left with her?

Solve real life problems involving subtraction

Example:

Nawaz had **1245** packets of chocolates. He sold **1089** packets. How many packets left?

Solution:

He has	1	[1]~~2~~	[13]~~4~~	[1]5	packets
He sold	−1	0	8	9	packets
	0	1	5	6	packets left

EXERCISE 17

(1) A shopkeeper has **850** chocolates of milk. He sold **480** chocolates. How many chocolates are left?

(2) Ali has two notes in his wallet. Their value together is **Rs 600.** One note is of **Rs 100**. What is the value of other note?

(3) A factory manufacturers **2460** cars in a year. **1946** cars are sold. How many cars are yet to be sold?

(4) Shamim collected **Rs 4950** as donation for flood affected. She purchased grocery and utensils **Rs 2895** for the affected villagers. How much amount is still left with her?

(5) A bakery had **4500** packet of cookies. **1862** were sold. How many were left?

(6) The population of a village comprises **9015** adult persons. **4386** are men, find the number of women.

2.3 MULTIPLICATION

Use the term 'product' for multiplication of two numbers

We have learnt multiplication in previous class.

There are 3 Starfish.
Each Starfish has 5 arms.
How many arms are altogether?

5 + 5 + 5 = 15

It means

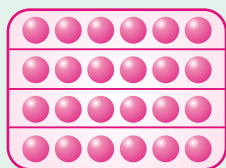
3 times 5 → 3 by 5

Or **3 x 5 = 15**

The product of **3** and **5** is **15**.

We can use the term **"product"** for **"multiplication"** of numbers.

Examples: Find the product of:

(1) **4** and **6**.

Solution:

6 by 4 means 6 times 4

4 x 6 = 24

The product of **4** and **6** is **24**.

(2) **8** and **5**.

Solution:

Product of 8 and 5 means 8 by 5

or 8 times 5

8 x 5 = 40

or

$$\begin{array}{r} 8 \\ \times\ 5 \\ \hline 40 \\ \hline \end{array}$$

Thus, the product is **40**.

Teacher's Note Teacher should revise the multiplication concept through process of repeating addition and use.

EXERCISE 18

(A) Find the product of the following:

(1) 3 x 4 = 12

(2) 2 x 6 = ☐

(3) 3 x 3 = ☐

(4) 7 x 5 = ☐

(5) 5 x 9 = ☐

(6) 8 x 3 = ☐

(7) 2 x 4 = ☐

(8) 3 x 6 = ☐

(9) 4 x 4 = ☐

(10) 3 x 6 = ☐

(B) Solve the following:

(1) The product of 5 and 4 is 5 x 4 = 20

(2) The product of 2 and 8 is ☐ = ☐

(3) The product of 5 and 6 is ☐ = ☐

(4) The product of 3 and 8 is ☐ = ☐

(5) The product of 10 and 7 is ☐ = ☐

Develop multiplication tables for 6, 7, 8 and 9

We have learnt tables of 2, 3, 4, 5 and 10 in previous class.
Now we develop table of 6.

Addition table	Way of reading	Multiplication table
6	1 six is 6	1 x 6 = **6**
6 + 6	2 sixes are 12	2 x 6 = **12**
6 + 6 + 6	3 sixes are 18	3 x 6 = **18**
6 + 6 + 6 + 6	4 sixes are 24	4 x 6 = **24**
6 + 6 + 6 + 6 + 6	5 sixes are 30	5 x 6 = **30**
6 + 6 + 6 + 6 + 6 + 6	6 sixes are 36	6 x 6 = **36**
6 + 6 + 6 + 6 + 6 + 6 + 6	7 sixes are 42	7 x 6 = **42**
6 + 6 + 6 + 6 + 6 + 6 + 6 + 6	8 sixes are 48	8 x 6 = **48**
6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6	9 sixes are 54	9 x 6 = **54**
6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6	10 sixes are 60	10 x 6 = **60**

Count in 6s and fill the missing numbers.

6, ______ , ______ , 24, ______ , ______

42, ______ , ______ , ______ , 66, ______

Teacher's Note

Teacher should help the students to develop table of 6, 7, 8 and 9 by using concrete material.

Table of 7.

Addition table	Way of reading	Multiplication table
7	1 seven is 7	1 x 7 = 7
7 + 7	2 sevens are 14	2 x 7 = 14
7 + 7 + 7	3 sevens are 21	3 x 7 = 21
7 + 7 + 7 + 7	4 sevens are 28	4 x 7 = 28
7 + 7 + 7 + 7 + 7	5 sevens are 35	5 x 7 = 35
7 + 7 + 7 + 7 + 7 + 7	6 sevens are 42	6 x 7 = 42
7 + 7 + 7 + 7 + 7 + 7 + 7	7 sevens are 49	7 x 7 = 49
7 + 7 + 7 + 7 + 7 + 7 + 7 + 7	8 sevens are 56	8 x 7 = 56
7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7	9 sevens are 63	9 x 7 = 63
7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7 + 7	10 sevens are 70	10 x 7 = 70

Count in 7s and fill in the blanks.

(1) 2 x 7 = 14 (2) 3 x 7 = ____

(3) 6 x 7 = ____ (4) 8 x 7 = ____

(5) 9 x 7 = ____ (6) 7 x 7 = ____

Table of 8.

Addition table	Way of reading	Multiplication table
8	1 eight is 8	1 x 8 = 8
8 + 8	2 eights are 16	2 x 8 = 16
8 + 8 + 8	3 eights are 24	3 x 8 = 24
8 + 8 + 8 + 8	4 eights are 32	4 x 8 = 32
8 + 8 + 8 + 8 + 8	5 eights are 40	5 x 8 = 40
8 + 8 + 8 + 8 + 8 + 8	6 eights are 48	6 x 8 = 48
8 + 8 + 8 + 8 + 8 + 8 + 8	7 eights are 56	7 x 8 = 56
8 + 8 + 8 + 8 + 8 + 8 + 8 + 8	8 eights are 64	8 x 8 = 64
8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8	9 eights are 72	9 x 8 = 72
8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 + 8	10 eights are 80	10 x 8 = 80

Count in 8 and complete.

1	2	3	4	5	6	7	8	9	10
x8	16								

Table of 9.

Addition table	Way of reading	Multiplication table
9	1 nine is 9	1 x 9 = **9**
9 + 9	2 nines are 18	2 x 9 = **18**
9 + 9 + 9	3 nines are 27	3 x 9 = **27**
9 + 9 + 9 + 9	4 nines are 36	4 x 9 = **36**
9 + 9 + 9 + 9 + 9	5 nines are 45	5 x 9 = **45**
9 + 9 + 9 + 9 + 9 + 9	6 nines are 54	6 x 9 = **54**
9 + 9 + 9 + 9 + 9 + 9 + 9	7 nines are 63	7 x 9 = **63**
9 + 9 + 9 + 9 + 9 + 9 + 9 + 9	8 nines are 72	8 x 9 = **72**
9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9	9 nines are 81	9 x 9 = **81**
9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9 + 9	10 nines are 90	10 x 9 = **90**

Count in 9 and complete.

1	2	3	4	5	6	7	8	9	10
x9									

Multiply 2-digit numbers by 1-digit number

Example: There are 3 bags and each bag has 12 toffees.

It means 3 times 12 *or* 3 by 12.

How many toffees in all?

Example: **Solve: Multiply 75 by 4.**

	T	O
(2)	7	5
x		4
3	0	0

Step 1: 4 x 5 = 20 ones
= 2 tens

Step 2: 4 x 7 = 28 tens
Now 28 + 2 = 30 tens

Teacher's Note

Teacher should help the students to understand the process of multiplication of 2-digit numbers by 1-digit number.

EXERCISE 19

(A) Solve the following:

(1)
```
  1 4
x   2
-----

-----
```

(2)
```
  3 1
x   2
-----

-----
```

(3)
```
  2 1
x   4
-----

-----
```

(4)
```
  1 2
x   4
-----

-----
```

(5)
```
  2 3
x   3
-----

-----
```

(6)
```
  3 5
x   2
-----

-----
```

(7)
```
  1 1
x   6
-----

-----
```

(8)
```
  5 3
x   6
-----

-----
```

(9)
```
  8 3
x   4
-----

-----
```

(B) Multiply:

(1) 13 by 2

(2) 64 by 4

(3) 23 by 5

(4) 22 by 6

(5) 21 by 7

(6) 15 by 3

(7) 37 by 5

(8) 14 by 6

Multiply a number by zero

Alia has 0 apples.

Kareem has 0 apples.

Kamran has 0 apples.

0 + 0 + 0 = 0

Or 3 x 0 = ☐

Zero multiplied by any number is always Zero.

EXERCISE 20

Solve:

(1)	0 x 2 = ☐	(2)	0 x 6 = ☐
(3)	5 x 0 = ☐	(4)	10 x 0 = ☐
(5)	4 x 0 = ☐	(6)	0 x 15 = ☐
(7)	7 x 0 = ☐	(8)	1 x 0 = ☐
(9)	3 x 0 = ☐	(10)	8 x 0 = ☐
(11)	0 x 9 = ☐	(12)	0 x 13 = ☐

Teacher's Note Teacher should give the concept of multiplication of any number by zero is always zero (0).

Apply mental mathematical strategies to multiply numbers up to the table of 10.

Example 1: **Multiply the following by using the mathematical strategies.**

(i) 3×5

Solution:

$3 \times 5 = (5 - 2) \times 5$

$= 5 \times 5 - 2 \times 5$

$= 25 - 10$

$= 15$

(ii) 12×13

Solution:

$12 \times 13 = (10 + 2) \times (10 + 3)$

$= 10 \times (10 + 3) + 2 \times (10 + 3)$

$= 10 \times 10 + 10 \times 3 + 2 \times 10 + 2 \times 3$

$= 100 + 30 + 20 + 6$

$= 150 + 6 = 156$

EXERCISE 21

Multiply the following by using mathematical strategies.

(1) 4 x 5	**(2)** 6 x 5	**(3)** 7 x 6
(4) 9 x 6	**(5)** 9 x 12	**(6)** 8 x 14
(7) 11 x 13	**(8)** 14 x 16	**(9)** 23 x 27
(10) 29 x 32	**(11)** 35 x 40	**(12)** 65 x 75
(13) 45 x 27	**(14)** 68 x 14	**(15)** 79 x 21
(16) 85 x 35	**(17)** 92 x 25	**(18)** 95 x 40

Solve real life problems involving multiplication of 2-digit numbers by 1-digit numbers

Example: **25** glasses of water fill **1** bucket. How many glasses of water needed to fill 6 such buckets?

EXERCISE 22

(1) In a parking area there is capacity of **15** motor bikes in a row. How many motor bikes are there in such **6** rows?

(2) There are **7** days in a week. How many days are there in **40** weeks?

(3) There are **8** trees in the park. **6** birds are sitting on each tree. How many birds are there in all?

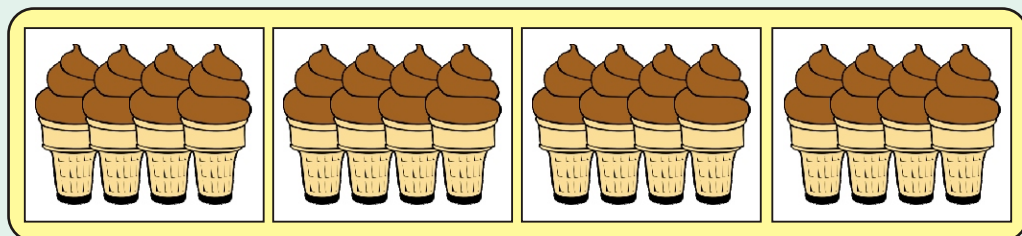
(4) A packet contains **54** chocolates. How many chocolates are there in **7** such packets?

(5) There are **3** scoops of ice cream in a cup. How many scoops of ice cream used to make **48** cups of ice creams?

(6) There is space of **25** books in one shelf. How many books can be kept such **6** shelves?

2.4 DIVISION

Divide 2-digit numbers by 1-digit numbers (with zero remainder).

Example 1: There are 16 cones in a box of ice cream with 4 in each set. How many 4's are there in 16?

16 – 4 = 12
12 – 4 = 8
8 – 4 = 4
4 – 4 = 0

Or we can solve it by using division

$$\begin{array}{r} 4 \\ 4\overline{)\,16} \\ -16 \\ \hline 00 \end{array}$$

4 is contained 4 times in 16.

So, 16 4 = 4

Teacher's Note: Teacher should explain the long division method of division with zero remainder.

Activity Encircle the number which matches the word:

4) 20 = 5	6) 42 = 7	7) 56 = 8
divisor	dividend	quotient

Example 2: Solve 55   5

```
     11
 5 ) 55
    _5↓
     05
    _ 5
      0
```

Step 1: First divide the number given in tens place by 5
5   5 = 1. Write 1 as quotient in the tens place.
Subtract 5 from 5 we get 0.

Step 2: Then write down 5 one from dividend.
Divide the number at ones place by 5.
5   5 = 1 write 1 as quotient in ones place.
Therefore quotient is 11 and remainder 0

EXERCISE 23

(A) Solve the following:

(1) 56   8 = ☐ (2) 32   4 = ☐
(3) 80   10 = ☐ (4) 54   6 = ☐
(5) 24   8 = ☐ (6) 45   5 = ☐
(7) 72   6 = ☐ (8) 85   5 = ☐
(9) 76   4 = ☐ (10) 75   5 = ☐

(B) Divide:

(1) 15 by 3

(2) 28 by 4

(3) 64 by 8

(4) 60 by 6

(5) 90 by 10

(6) 56 by 7

(7) 60 by 4

(8) 99 by 3

(9) 65 by 5

(10) 77 by 7

(11) 91 by 7

(12) 50 by 2

(C) Write the term which matches the circled number:

(1) $3\overline{)15}$ quotient 5 (circled: 15) — dividend

(2) $8\overline{)16}$ quotient 2 (circled: 2) — ______

(3) $7\overline{)28}$ quotient 4 (circled: 7) — ______

(4) $7\overline{)63}$ quotient 9 (circled: 9) — ______

(5) $8\overline{)32}$ quotient 4 (circled: 8) — ______

(6) $7\overline{)49}$ quotient 7 (circled: 49) — ______

Apply mental mathematical strategies to divide numbers up to the table of 10

Example: Saima has **24** flowers. She used **8** flowers to make a garland. How many garlands will be made with all flowers?

Solution: **24** **8**

First recall the table of 8, then solve

24 8 **= 3**

EXERCISE 24

1. A teacher shared **28** flash cards among **4** groups of students. How many flash cards did each group will be received?

2. Ahsan has **45** tickets of charity show for sale equally in five classes. How much he sold in each class?

3. Ismail pays **Rs 63** for **9** times rent of bicycle. How much did he pay for one time?

4. Raza wrote **100** pages in **5** days. How many pages he wrote daily?

5. A class teacher checks **49** copies in seven days. How many copies he checked in a day?

6. Samina used **15** litre of milk to make **5** buckets of milk rose. How much milk she used for one bucket?

7. A shopkeeper sold **81** toffees equally to **9** students. How many each student got?

Solve real life problems involving division of 2-digit numbers by 1-digit numbers

Example: **5** school vans carry total **70** students. Each van carry equal number of students. How many students are there in each van?

Number of students in each van **= 14**.

EXERCISE 25

(1) How many **4** packets of biscuits can be made with **80** biscuits?

(2) There are **96** sweets. Each box can hold **6** sweets. How many boxes are required?

(3) **36** students are divided into volley ball team of **12** each. How many volley ball teams are made?

(4) Sana has **42** crayons. She can put **6** in one box. How many boxes will be needed?

(5) Sana purchased **6** kg salt in **Rs 84**. Find the price of **1** kg.

FRACTIONS

3.1 COMMON FRACTIONS

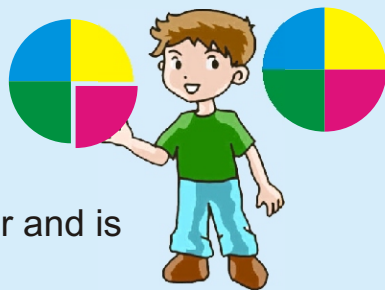
Express the fractions in figures and vice versa

We have learnt about fractions.

A fraction is equal parts of a whole.

Some examples of fractions are $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, etc.

We get fractions by dividing different objects in equal parts.

Suppose a circular piece of paper is cut into four equal parts. One out of 4 parts is given to a child. This piece is one-fourth of the circular piece of paper and is written as $\frac{1}{4}$. It is read as “1 by 4.”

The remaining three pieces out of 4 are written as $\frac{3}{4}$. It is read as 3 by 4 or three-fourth.

These numbers $\frac{1}{4}$, $\frac{3}{4}$ and $\frac{2}{3}$ are called **Common fractions.**

In common fraction $\frac{3}{4}$, 3 is called the **numerator** and 4 is the **denominator.**

Upper number of the fraction is called Numerator $\frac{3}{4}$ **Lower number of fraction is called Denominator**

Examples 1:

1. In $\frac{2}{9}$ Numerator is 2 and Denominator is 9.
2. In $\frac{5}{12}$ Numerator is 5 and Denominator is 12.

Teacher's Note Teacher should bring different real objects like biscuits and apples etc in class and cut them in equal parts to show fractions.

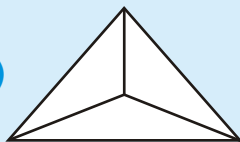
Express the fractions of coloured part in the following figures:

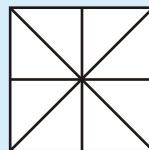
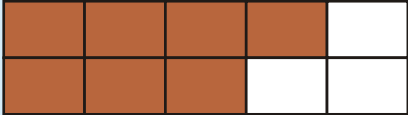
Figure	Coloured part represents	Read as
	$\frac{1}{6}$	one-sixth
	$\frac{3}{5}$	three-fifth

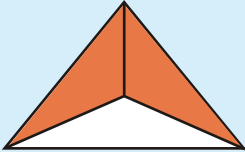
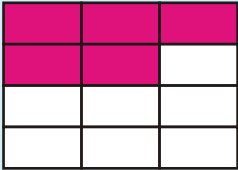
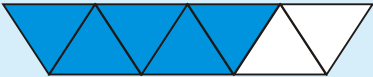
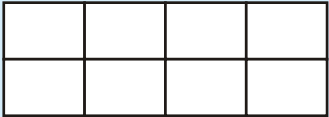
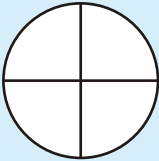
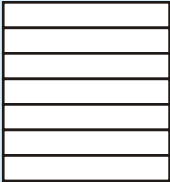
Show the fractions by colouring the following figures:

(i)

$\frac{2}{5}$

(ii)

$\frac{1}{3}$

(iii)

$\frac{3}{8}$

EXERCISE 26

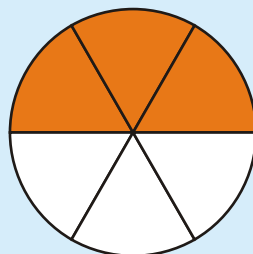
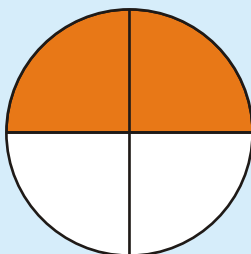
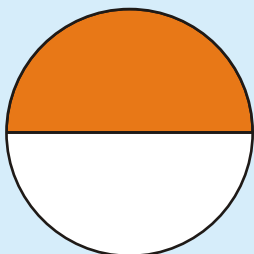
(A) Express the fractions of coloured parts of the given figures numerically.

(B) Colour the following figures to express given fractions:

(C) Write the fractions expressed by:

(1) Numerator = 4 , Denominator = 11 , fraction = —

(2) Numerator = 7 , Denominator = 8 , fraction = —

3.2 EQUIVALENT FRACTIONS

Identify equivalent fractions from the given figures.

Example: Observe the coloured part in the following three figures.

The coloured part in each figure represents the following fractions:

$\frac{1}{2}$ $\frac{2}{4}$ $\frac{3}{6}$

It is also observed that:

- The coloured part shown in all the three circles are of same size
- So, $\frac{1}{2}$ represents same part (half circle) as $\frac{2}{4}$ and $\frac{3}{6}$.
- Mathematically we write it as: $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$
- So, $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$ are equivalent fractions.

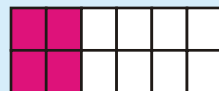
Write three equivalent fractions for a given fraction

Example 1: Write three equivalent fractions for a given fraction $\frac{1}{3}$

Solution:

$\frac{1}{3}$ $\frac{2}{6}$ $\frac{3}{9}$ $\frac{4}{12}$

Teacher's Note

Teacher should explain the term numerator and denominator. Also explain the equivalent fraction by figure and using paper strips in class.

Here $\frac{1}{3}$, $\frac{2}{6}$, $\frac{3}{9}$ and $\frac{4}{12}$ represent same size of shape,

therefore $\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12}$

Thus $\frac{2}{6}$, $\frac{3}{9}$ and $\frac{4}{12}$ are three equivalent fractions of the given fraction $\frac{1}{3}$.

Look at the following:

$$\frac{1}{3} = \frac{1 \times 2}{3 \times 2} = \frac{2}{6},\ \frac{1 \times 3}{3 \times 3} = \frac{3}{9},\ \frac{1 \times 4}{3 \times 4} = \frac{4}{12}$$

This explanation shows that:

> If we multiply the numerator and denominator of a fraction by the same number (other than zero), we get an equivalent fraction.

Example 2:

Find three equivalent fractions for $\frac{1}{2}$ and $\frac{2}{5}$.

Solution

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8}$$

Explanation

$$\frac{1 \times 2}{2 \times 2} = \frac{2}{4},\ \frac{1 \times 3}{2 \times 3} = \frac{3}{6},\ \frac{1 \times 4}{2 \times 4} = \frac{4}{8}$$

$$\frac{2}{5} = \frac{4}{10} = \frac{6}{15} = \frac{8}{20}$$

Explanation

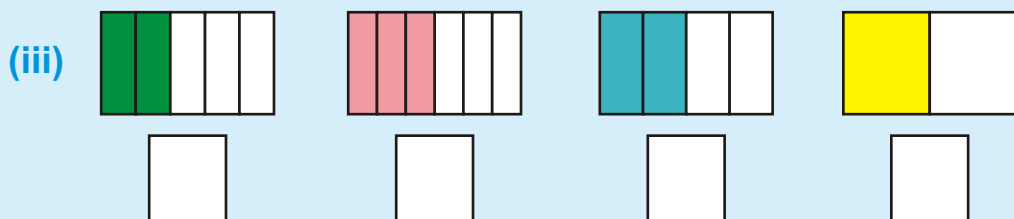
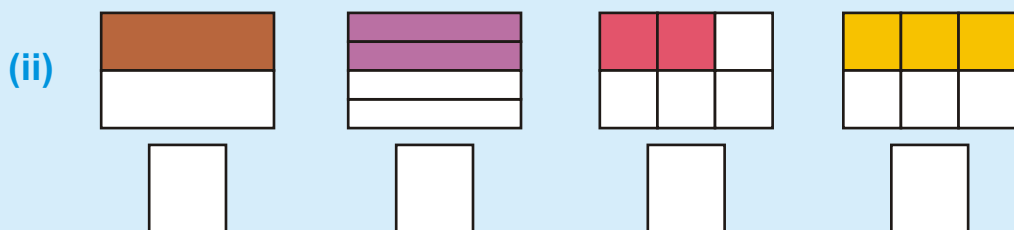
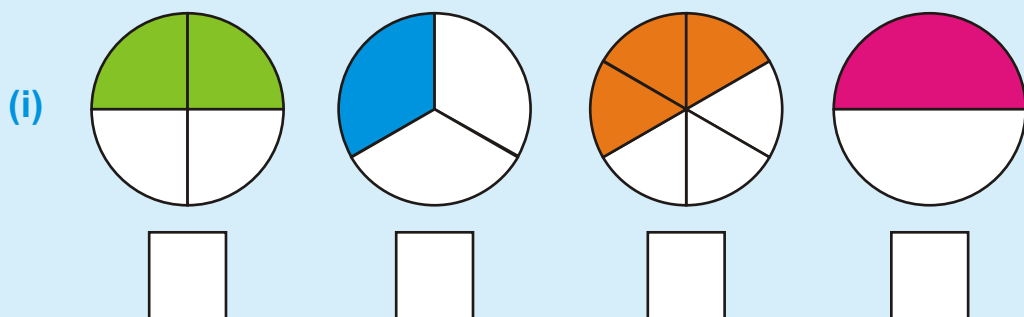
$$\frac{2 \times 2}{5 \times 2} = \frac{4}{10},\ \frac{2 \times 3}{5 \times 3} = \frac{6}{15},\ \frac{2 \times 4}{5 \times 4} = \frac{8}{20}$$

EXERCISE 27

1. Identify and write the figures which show equivalent fractions.

(i)

(ii)

(iii)

2. Write three equivalent fractions for the following:

(i) $\frac{1}{4}$, ___ , ___ , ___

(ii) $\frac{2}{3}$, ___ , ___ , ___

(iii) $\frac{3}{4}$, ___ , ___ , ___

(iv) $\frac{4}{5}$, ___ , ___ , ___

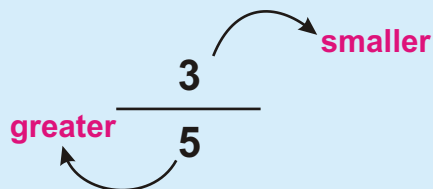
(v) $\frac{1}{5}$, ___ , ___ , ___

(vi) $\frac{2}{6}$, ___ , ___ , ___

3.3 PROPER AND IMPROPER FRACTIONS

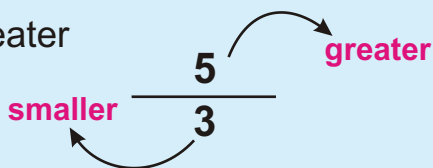
Differentiate between proper and improper fractions

Proper Fraction:

A fraction in which numerator is smaller than the denominator is called proper fraction.

For example $\frac{1}{4}$, $\frac{2}{5}$, $\frac{3}{7}$, $\frac{5}{6}$ and $\frac{11}{12}$ are proper fractions.

Improper Fraction:

A fraction in which numerator is greater than or equal to the denominator is called improper fraction.

greater
$\frac{5}{3}$
smaller

For example $\frac{4}{1}$, $\frac{5}{5}$, $\frac{6}{5}$, $\frac{5}{4}$ and $\frac{12}{11}$ are improper fractions.

$\frac{3}{1}$, $\frac{2}{1}$, $\frac{2}{2}$, $\frac{3}{3}$, $\frac{4}{4}$ are also some examples of improper fractions.

$\frac{2}{9}$, $\frac{4}{3}$, $\frac{11}{7}$, $\frac{6}{1}$, $\frac{2}{5}$, $\frac{9}{9}$, $\frac{8}{1}$, $\frac{1}{3}$, $\frac{14}{13}$, $\frac{12}{15}$

Proper Fractions	Improper Fractions

3.4 COMPARING FRACTIONS

Compare fractions with same denominators, using symbols ‘<’, ‘>’ and ‘=’

Let us consider the coloured parts of the following figures:

$\frac{1}{3}$ $\frac{2}{3}$

Here each figure is divided into 3 equal parts.

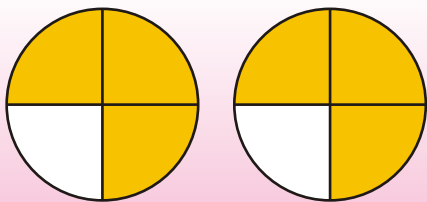
Fraction $\frac{1}{3}$ has **1** coloured part.

Fraction $\frac{2}{3}$ has **2** coloured parts.

As **1** is less than **2**

or in symbols **1** < **2**

So, $\frac{1}{3} < \frac{2}{3}$

Similarly, we can say $\frac{2}{3} > \frac{1}{3}$ because **2** > **1** and both fractions have same denominator.

$\frac{3}{4}$ $\frac{3}{4}$

Here, each figure is divided into **4** equal parts.

Both fractions have **3** coloured parts out of **4**.

As **3** is equal to **3**

Or **3** = **3**

So, $\frac{3}{4} = \frac{3}{4}$

If denominators of two fractions are same, the fraction with the larger numerator is the larger fraction.

Teacher’s Note

Teacher should help the students to understand the comparing fractions through figures and use symbols ‘<’, ‘>’ and ‘=’.

We use symbols to compare fractions.

'<' less than	'>' greater than	'=' equal to
$\frac{1}{4} < \frac{3}{4}$	$\frac{7}{8} > \frac{5}{8}$	$\frac{2}{9} = \frac{2}{9}$
Same denominators	Same denominators	Same denominators

Tick ✓ for correct and cross ✗ for incorrect.

(1) $\frac{2}{5} < \frac{3}{5}$ (2) $\frac{1}{8} > \frac{3}{8}$ ☐

(3) $\frac{11}{12} = \frac{5}{12}$ ☐ (4) $\frac{7}{13} = \frac{7}{13}$ ☐

EXERCISE 28

(A) Encircle proper fractions in the following.

(1) $\frac{2}{3}$ (2) $\frac{3}{5}$ (3) $\frac{7}{5}$ (4) $\frac{5}{1}$

(5) $\frac{4}{9}$ (6) $\frac{3}{2}$ (7) $\frac{11}{7}$ (8) $\frac{9}{9}$

(B) Fill the boxes by using symbols '<', '>' or '='.

(1) $\frac{1}{6}$ ☐ $\frac{3}{6}$ (2) $\frac{3}{5}$ ☐ $\frac{2}{5}$ (3) $\frac{2}{8}$ ☐ $\frac{4}{8}$

(4) $\frac{7}{9}$ ☐ $\frac{6}{9}$ (5) $\frac{2}{7}$ ☐ $\frac{2}{7}$ (6) $\frac{8}{10}$ ☐ $\frac{5}{10}$

(7) $\frac{3}{9}$ ☐ $\frac{4}{9}$ (8) $\frac{5}{6}$ ☐ $\frac{2}{6}$ (9) $\frac{7}{11}$ ☐ $\frac{7}{11}$

3.5 ADDITION OF FRACTIONS

Add two fractions with same denominators

When we add the fractions with same denominators, we will add their numerators only.

Hence

Sum of two fractions having same denominators $\dfrac{\text{Sum of numerators}}{\text{Denominator}}$

Example: Add $\dfrac{3}{8} + \dfrac{4}{8}$

Solution: $\dfrac{3}{8} + \dfrac{4}{8} = \dfrac{3+4}{8} = \boxed{\dfrac{7}{8}}$

 Activity **Solve:**

(1) $\dfrac{1}{7} + \dfrac{4}{7} = \dfrac{1+4}{7} = \square$

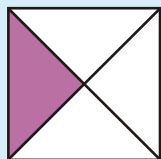
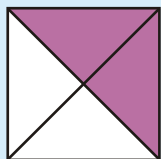
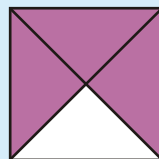
(2) $\dfrac{4}{9} + \dfrac{3}{9} = \dfrac{4+3}{9} = \square$

(3) $\dfrac{3}{11} + \dfrac{5}{11} = \dfrac{3+5}{11} = \square$

Represent addition of fractions through figures

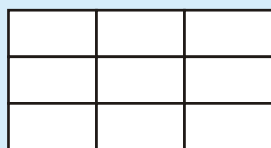
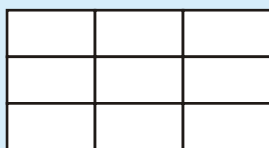
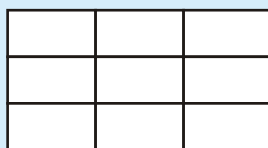
Let us perform addition of two fractions by their coloured parts.

Example 1: Add $\dfrac{1}{4}$ and $\dfrac{2}{4}$.

Solution: Look at the figures of given fractions

$\dfrac{1}{4} + \dfrac{2}{4} = \dfrac{1+2}{4} = \dfrac{3}{4}$

i.e one-fourth and two-fourth give three fourth.

Teacher's Note Teacher should help the students to add the fraction having same denominators.

Add $\frac{3}{9}$ and $\frac{5}{9}$ by colouring the shapes of fractions.

$\frac{3}{9}$ + $\frac{5}{9}$ = $\frac{8}{9}$

Colour first 3 parts | Colour next 5 parts | Total Colour parts are 3 + 5 = 8

So, $\frac{3}{9} + \frac{5}{9} = \frac{3+5}{9} = \frac{8}{9}$

EXERCISE 29

(A) Solve the following fractions:

(1) $\frac{1}{3} + \frac{1}{3}$ (2) $\frac{1}{5} + \frac{3}{5}$ (3) $\frac{2}{4} + \frac{1}{4}$ (4) $\frac{3}{6} + \frac{2}{6}$

(5) $\frac{2}{7} + \frac{4}{7}$ (6) $\frac{3}{8} + \frac{4}{8}$ (7) $\frac{5}{9} + \frac{4}{9}$ (8) $\frac{3}{11} + \frac{6}{11}$

(9) $\frac{3}{15} + \frac{10}{15}$ (10) $\frac{11}{18} + \frac{6}{18}$ (11) $\frac{1}{14} + \frac{12}{14}$ (12) $\frac{9}{20} + \frac{10}{20}$

(B) Add:

(1) $\frac{3}{7}$ and $\frac{2}{7}$ (2) $\frac{4}{12}$ and $\frac{5}{12}$ (3) $\frac{6}{15}$ and $\frac{7}{15}$

(C) Add the following fractions through figures:

(1) $\frac{2}{5} + \frac{1}{5}$ (2) $\frac{3}{7} + \frac{5}{7}$ (3) $\frac{8}{10} + \frac{1}{10}$

(4) $\frac{1}{12} + \frac{1}{12}$ (5) $\frac{6}{13} + \frac{3}{13}$ (6) $\frac{7}{15} + \frac{4}{15}$

3.6 SUBTRACTION OF FRACTIONS

Subtract fractions with same denominators

To subtract the fractions having same denominators, we will subtract their numerators only.

Hence

Subtraction of two fractions having same denominators → $\dfrac{\text{Subtraction of numerators}}{\text{Denominator}}$

Example 1: **Subtract $\frac{3}{4}$ from $\frac{3}{4}$**

Solution: $\dfrac{3}{4} - \dfrac{3}{4} = \dfrac{3-3}{4} = \dfrac{0}{4} = 0$

Activity **Solve.**

(1) $\dfrac{3}{4} - \dfrac{2}{4} = \dfrac{3-2}{4} = \square$

(2) $\dfrac{6}{7} - \dfrac{1}{7} = \dfrac{6-1}{7} = \square$

(3) $\dfrac{11}{12} - \dfrac{5}{12} = \dfrac{11-5}{12} = \square$

Represent subtraction of fractions through figures

Let us perform subtraction of two fractions by colouring the respective parts.

Example 1: Subtract $\frac{2}{5}$ from $\frac{3}{5}$.

Solution: Consider the figures of given fractions.

$$\frac{3-2}{5} = \frac{1}{5}$$

i.e. From $\frac{3}{5}$ subtracted $\frac{2}{5}$ and get $\frac{1}{5}$.

EXERCISE 30

1. Subtract the following fractions:

(i) $\frac{2}{3} - \frac{1}{3}$ (ii) $\frac{4}{5} - \frac{2}{5}$ (iii) $\frac{5}{6} - \frac{4}{6}$

(iv) $\frac{6}{8} - \frac{3}{8}$ (v) $\frac{5}{7} - \frac{3}{7}$ (vi) $\frac{7}{9} - \frac{5}{9}$

(vii) $\frac{8}{10} - \frac{3}{10}$ (viii) $\frac{9}{13} - \frac{5}{13}$ (ix) $\frac{6}{11} - \frac{1}{11}$

(x) $\frac{10}{12} - \frac{3}{12}$ (ix) $\frac{13}{15} - \frac{12}{15}$ (xii) $\frac{15}{18} - \frac{10}{18}$

2. Subtract:

(i) $\frac{1}{4}$ from $\frac{2}{4}$ (ii) $\frac{2}{14}$ from $\frac{13}{14}$ (iii) $\frac{16}{19}$ from $\frac{17}{19}$

3. Subtract the following fractions and draw the figures:

(i) $\frac{5}{7} - \frac{3}{7}$ (ii) $\frac{8}{9} - \frac{1}{9}$ (iii) $\frac{4}{10} - \frac{3}{10}$

(iv) $\frac{12}{13} - \frac{5}{13}$ (v) $\frac{9}{11} - \frac{5}{11}$ (vi) $\frac{10}{17} - \frac{4}{17}$

(vii) $\frac{13}{25} - \frac{7}{25}$ (viii) $\frac{16}{17} - \frac{15}{19}$ (ix) $\frac{11}{15} - \frac{8}{15}$

Unit 4

MEASUREMENT

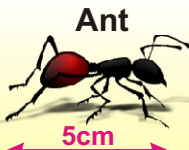
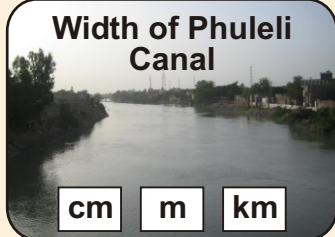
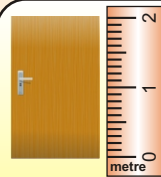
4.1 LENGTH

We have learnt about length and the unit of length i.e metre and centimetre.

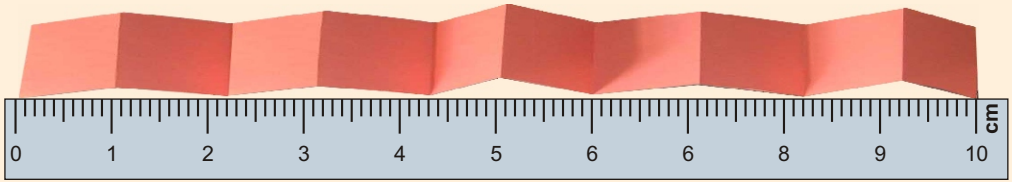
Read standard units of length (kilometre, metre and centimetre) including abbreviations.

The units of length are used to measure height, width, depth, length and distance. In the international system, of standard unit, the metre is the basic unit of length. It is denoted by m.

We use centimetres for measuring small lengths, metres for bigger and kilometres for long distance. The abbreviation used for kilometre is “km”, for metre is “m” and for centimetre is “cm”.

Activity Colour the correct unit of length.

Teacher’s Note Teacher should revise the standard units of length and their abbreviations.

Measure and write standard units of length including abbreviations

Kilometre, Metre and Centimetre.

The length of this strip is 10 centimetres.

Make 10 of these strips. Tape them together.

The length of your new strip is one **metre (m).**

100 centimetres = 1 metre

Now use your metre strip to measure the length and height of your desk and height of a door.

Suppose you made 1000 meter strips and taped them together.

The length of your new strip would be one kilometer (km).

1000 metres = 1 kilometre

Note: Kilometre is used to measure the long distance.

The distance between Sukkur and Karachi city is 490 km.

Sukkur **Karachi**

Teacher's Note Teacher should help the students to measure the exact unit of length.

EXERCISE 31

(1) Measure and write the length of the following:

(i) 6 cm

(ii) ________

(iii) ________

(iv) ________

(v) ________

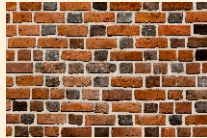
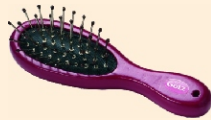
(2) Tick (✓) the correct and Cross the (✗) the in correct answer:

(i) Length of the toothpaste is measured in **metres.**

(ii) Length of the is measured in **metres.** ☐

(iii) Distance from

to is measured in **km.**

(iv) Height of the is measured in **centimetres.**

(v) Length of the is measured in **kilometres.**

(vi) Length of the is measured in **centimetres.**

(3) Fill in the blanks using words centimetre, metre and kilometre.

(i) To measure the length of your science book in__________.

(ii) To measure the length of the chalk in _______________.

(iii) To measure the length of your colour pencil in__________.

(iv) To measure the length of your classroom's window in _________.

(v) To measure the length of your classroom's door in______.

Addition of units of length

Add measures of length in same units of length including abbreviations.

Let us learn how to add the same units of length with and without carrying.

Example : Add the following:

(1) 3 m + 4 m

Solution:

	3 m
+	4 m
	7 m

Thus the sum is **7 m.**

(2) 36 km + 15 km

Solution

	(1) 3 6 km
+	1 5 km
	5 1 km

Thus the sum is **51 km.**

EXERCISE 32

(A) Solve the following:

(1)

cm
6 7
+ 2 1

(2)

m
3 7
+ 8 5

(3)

km
2 8
+ 1 5

(4)

m	cm
11	33
+ 1	41

(5)

m	cm
8	6 8
+ 6	3 1

(6)

km	m
35	515
+ 12	436

(B) Add the following

(1) 66 cm and 23 cm (2) 18 m and 9 m

(3) 23 km and 18 km (4) 44 m 5 cm and 78 m 30 cm

Solve real life problems involving same units of length for addition with and without carrying.

Example 1:

Ali went to Rahim Yar Khan from Karachi. He travelled a distance of 756 km by train and 35 km by bus. How much total distance has he travelled?

Solution: Distance travelled by train $\quad 7\overset{1}{5}6$ km

Distance travelled by bus $\quad + \; 35$ km

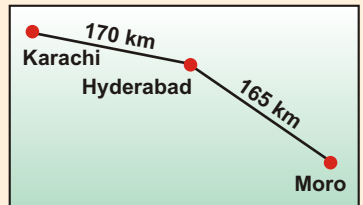
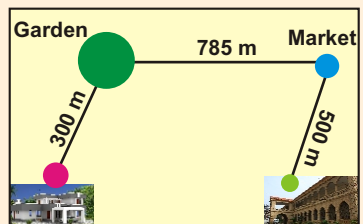
$\quad 791$ km

Thus Ali travelled the distance **791 km**.

EXERCISE 33

(1) Wires of length 65 cm and 38 cm are needed to provide electricity in house. Find out the total length of wire required.

(2) A shopkeeper bought 240 m of green cloth, 105 m blue cloth for his shop. What is the total length of the cloth bought?

(3) Distance between Karachi and Hyderabad and Moro is shown in map. Find the distance from karachi to Moro.

(4) The distance covered by Ayaz cover daily from home to garden, garden to market and market to school, which is shown in the figure. Find the total distance covered by him.

Subtract measures of length in same units with and without borrowing

Example:
Subtract **45 cm** from **95 cm**

Solution

$$\begin{array}{r} 9\,5 \text{ cm} \\ -\ 4\,5 \text{ cm} \\ \hline 5\,0 \text{ cm} \\ \hline \end{array}$$

Thus the difference is **50 cm**.

Activity Subtract **786 m** from **950 m**.

Solution

$$\begin{array}{r} 9\,5\,0 \text{ m} \\ -\ 7\,8\,6 \text{ m} \\ \hline \text{m} \\ \hline \end{array}$$

Thus the difference is ______

EXERCISE 34

(A) Solve

(1)
$$\begin{array}{r} 8\,1 \text{ cm} \\ -\ 4\,2 \text{ cm} \\ \hline \\ \hline \end{array}$$

(2)
$$\begin{array}{r} 4\,8 \text{ km} \\ -\ 1\,9 \text{ km} \\ \hline \\ \hline \end{array}$$

(3)
$$\begin{array}{r} 2\,6 \text{ m} \\ -\ 8 \text{ m} \\ \hline \\ \hline \end{array}$$

(4)

km	m
39	80
– 17	48

(5)

km	m
44	72
– 26	50

(6)

km	m
58	465
– 29	287

(B) Subtract the following:

(1) **36 cm** from **76 cm**

(2) **9 m** from **12 m**

(3) **88 km** from **95 km**

(4) **494 m** from **680 m**

(5) **864 km 150 m** from **936 km 324 m**

Solve real life problems involving same units of length for subtraction with and without borrowing

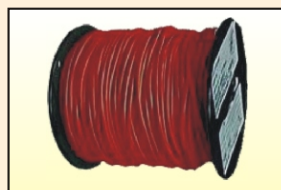
Activity A shopkeeper sold **24 m** cloth from a roll of **33 m**. How much cloth is left in the roll?

Solution

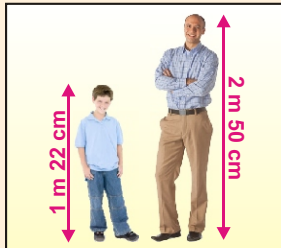
Total cloth	3 3 m
Cloth sold	– 2 4 m
Cloth left	m

Thus the remaining cloth in the roll is ☐ m.

EXERCISE 35

(1) An electrician used **35 m** wire for fitting of one fan in a class room of school from a roll of **50 m**. How much wire is left in the roll?

(2) Shazia bought **72 cm** lace. She used **47 cm** lace to decorate a shirt. What length of lace is left with her?

(3) A tailor master used **466 m** ribbon for making a pattern on a dress from **1100 m**. How much ribbon is left in the reel?

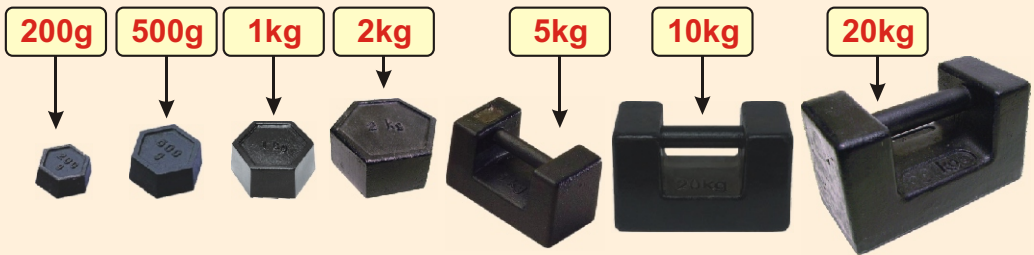
(4) Height of Azhar is **1 m 22 cm** and height of his father is **2 m 50 cm**. How much is his father taller than him.

4.2 UNIT OF MASS/WEIGHT

Read standard units of mass/weight (kilogram and gram) including abbreviations.

We have learnt that the weight (mass) of light object like a small paper clip, toffees, chillies and tea is measured in grams (g), the bulk quantity of objects like cement, wheat, flour etc is measured in kilogram (kg).

The standard unit of weight is kilogram (kg) which is equal to 1000gram (g).

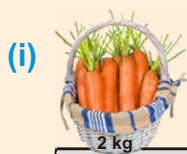
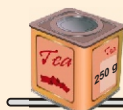
1000g = 1kg

In daily life mostly shopkeepers use following weights

Measure and write standard units of mass/weigth including abbreviations

Colour the suitable unit of weight (kg, g) to measure the weight of the following objects:

Teacher's Note Teacher should revise the standard units of mass/weight and their abbreviation.

EXERCISE 36

(1) Read the correct unit of mass (kg or g) for the following things. Colour the correct unit in each.

(2) Fill in the blanks using kilogram or gram.

(i) Weight of one apple is measured in ___g___

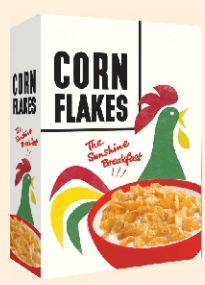
(ii) Weight of brick is measured in ________________

(iii) Weight of mobile phone is measured in ________

(iv) Weight of log is measured in _________________

(v) Weight of necklace is measured in ___________

(vi) Weight of the hat in measured in______________

(3) Tick (✓) the correct unit of mass of the following things.

Add measures of mass/weight in same units with and without carrying.

Example: **Add the following:**

(1) 320 g + 210 g

Solution:

```
  320g
+ 210g
  ----
  530g
```

(2) 3399 kg + 3577 kg

Solution:

```
  ①①
  3399kg
+ 3577kg
  ------
  6976kg
```

EXERCISE 37

(A) Solve.

(1)
```
  2 9 0 g
+ 3 0 5 g
```

(2)
```
  5 0 4 g
+ 3 1 3 g
```

(3)
```
  3 2 5 g
+ 4 7 7 g
```

(4)
```
  35 kg
+ 46 kg
```

(5)
```
  1214 kg
+ 2453 kg
```

(6)
```
  2396 kg
+ 5725 kg
```

(B) Find the sum of following:

(1) 350 g + 200 g

(2) 758 kg + 265 kg

(3) 375 g + 900 g

(4) 485 g + 7312 g

Solve real life problems involving same units of mass/weight for addition with and without carrying.

Example :

Azhar has **678 g** of sugar in a jar. He puts another **245 g** more sugar in it. Find the total quantity of sugar in the jar.

Solution

	(1)(1)
Sugar present in jar:	678 g
Sugar added:	+ 245 g
Total:	**923 g**

Hence the total quantity of sugar in the jar is **923 g**.

EXERCISE 38

(1) Aslam bought **250 g** of black pepper and **350 g** red pepper for his kitchen. Find the total weight of both spices.

(2) Calculate the weight of two bags of flour, when each bag weighs **10 kg**.

(3) Kishwar buys **2 kg** of tomatoes, **7 kg** of onion and **6 kg** of cabbage. for a week. Find the total weight of all vegetables.

(4) Imran purchased **28 kg** of cotton on Monday and **31 kg** of cotton on Tuesday. Find the total quantity of cotton he purchased.

Subtract measures of mass/weight in same units with and without borrowing.

Example 1: **Subtract the following:**

(i) 578g – 342g

Solution

578g
– 342g
236g

(ii) 5302kg – 3415kg

Solution

EXERCISE 39

(A) Subtract.

(1)
32 kg
– 31 kg

(2)
4 9 6 g
– 3 8 2 g

(3)
8 1 2 g
– 6 5 3 g

(4)
7 2 4 k g
– 3 4 5 k g

(5)
8 2 3 k g
– 7 1 2 k g

(6)
9 8 6 g
– 3 9 7 g

(B) Subtract.

(1) **348g** from **600g**

(2) **175kg** from **428kg**

(3) **125g** from **345g**

(4) **12kg** from **20kg**

(5) **150g** from **370g**

(6) **120kg** from **200kg**

Solve real life problems involving same units of mass/weight for subtraction with and without borrowing.

Example 1: Saleem bought **800 g** rice from market. His family consumed **450 g** rice. How much rice is left?

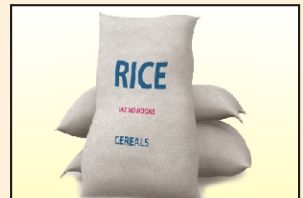
Solution:

Weight of rice purchased:		8 ⑦0 ⑩0 g
Weight of rice consumed:	–	450 g
Weight of rice left:		**350 g**

Therefore weight of rice left is **350 g**.

EXERCISE 40

(1) A grocer had **68 kg** of onion, he sold **53 kg** of onion in a day. How much onions are left with him?

(2) A man bought **250 kg** of rice for a marriage ceremony. Out of which **150 kg** of rice was used. How much rice was left?

(3) **5000 kg** of iron was purchased for the construction of a bungalow. Out of which **3550 kg** of iron was used. How much iron is left?

(4) Farhan purchased **8 kg** mangoes. His brother Ikram purchased **30 kg** mangoes. Who purchased more and how much?

4.3 VOLUME/CAPACITY

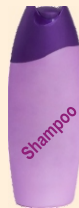
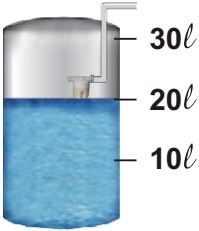
We have learnt about capacity that capacity is the amount of liquid a container hold. We know that the standard unit of capacity is litre which is denoted by "ℓ"

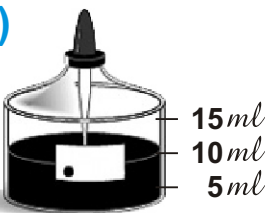
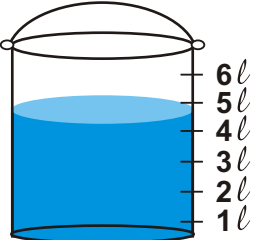
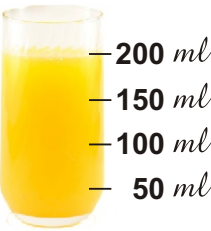
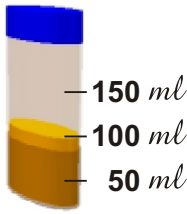
Units of volume

Read standard units of volume (litre and millilitre) including abbreviations

The standard units of capacity are litre (ℓ) and millilitre (mℓ). Large quantity of liquid like water in water cooler or oil in a big bottle is measured in litres (ℓ). Small quantity of liquids like glass of water or cup of tea, ink in pen is measured in millilitre (mℓ). There are 1000 millilitres in one litre.

1000 millilitres = 1 litre
or
1000 mℓ = 1ℓ

Activity **Colour the suitable unit of capacity for the given things of liquid.**

Teacher's Note Teacher should revise the standard units of volume and their abbreviation.

Measure and write standard units of volume including abbreviations

Activity Read and write the volume of liquids that the following objects contain.

Teacher's Note Teacher should help the students to measure the units of volume.

EXERCISE 41

(A) Which unit would be used to measure?

1.

90 *ml*
900 *ml*
2900 *ml*

2.

3 *ℓ*
30 *ℓ*
300 *ℓ*

3.

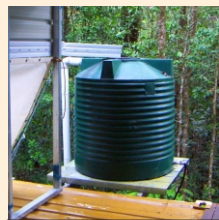
50 *ml*
500 *ml*
5000 *ml*

(B) Write the appropriate amount of liquid.

1. Rizwana filled a bucket with water to clean her room. Tell that the bucket hold 9 litre or 9 millitre of water.

9*ℓ*

2. Aabish adds one tea spoon of vanilla to her cake recipe. Did she use 5ml or 5l of vanilla?

3. Your school has a large tank of water. The tank will hold 100 *ℓ* or 100 *ml* of water?

4. Farzana bought juice for her friends to drink at her birthday party. The volume of juice is 250 *ℓ* or 250 *ml*?

5. Ali bought a cup of tea. The cup hold 200 *ℓ* or 200 *ml* of tea?

Add measures of volume in same units with and without carrying.

Examples: Solve

(1) 330 ml + 422 ml

Solution:

$$\begin{array}{r} 330\ ml \\ +\ 422\ ml \\ \hline 752\ ml \end{array}$$

(2) 372 ℓ + 288 ℓ

Solution:

$$\begin{array}{r} \scriptsize{1\ 1}\quad \\ 372\ \ell \\ +\ 288\ \ell \\ \hline 660\ \ell \end{array}$$

EXERCISE 42

(A) Solve.

(1)
$$\begin{array}{r} 635\ ml \\ +\ 223\ ml \\ \hline \end{array}$$

(2)
$$\begin{array}{r} 562\ ml \\ +\ 458\ ml \\ \hline \end{array}$$

(3)
$$\begin{array}{r} 898\ \ell \\ +\ 101\ \ell \\ \hline \end{array}$$

(4)
$$\begin{array}{r} 729\ \ell \\ +\ 271\ \ell \\ \hline \end{array}$$

(5)
$$\begin{array}{r} 999\ ml \\ +\ 666\ ml \\ \hline \end{array}$$

(6)
$$\begin{array}{rr} \ell & ml \\ 3 & 218 \\ +\ 2 & 551 \\ \hline \end{array}$$

(B) Add.

(1) 320 ml and 175 ml

(2) 608 ℓ and 747 ℓ

(3) 340 ml and 5 ℓ 650 ml

(4) 36 ℓ and 23 ℓ 825 ml

Solve real life problems involving same units of volum for addition with and without carrying

Example: Abdul Rahim fills his car with **20** ℓ and his brother filled his motor bike with **5** ℓ petrol. How much total petrol was filled?

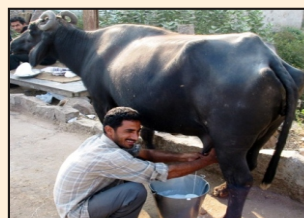
Solution:

Petrol in car	=	**20** ℓ
Petrol in motor bike	=	+ **5** ℓ
Total petrol	=	**25** ℓ

Thus, the total petrol is **25** ℓ.

EXERCISE 43

(1) Ashraf drank **350** $m\ell$ orange juice in the morning, **200** $m\ell$ at evening. How many millilitres he drank whole day?

(2) A milk man has two buffalos. One buffalo gives **15** ℓ of milk and other gives **18** ℓ of milk. How much milk does he get from both buffalos?

(3) The capacity of three water tankers are **1320** ℓ, **1215** ℓ and **830** ℓ. Find the total capacity of these tankers?

(4) A school has two water tanks. The capacity of green tank is **550** ℓ and the capacity of blue tank is **375** ℓ. Find the total quantity of water in both tanks?

Subtract measures of volume in same units with and without borrowing

Example 1: Subtract

(1) 697 mℓ – 571 mℓ

Solution

```
  6 9 7 mℓ
– 5 7 1 mℓ
  1 2 6 mℓ
```

(2) 6222 ℓ – 1684 ℓ

Solution

```
  5 11 11 12
  6  2  2  2 ℓ
– 1  6  8  4 ℓ
  4  5  3  8 ℓ
```

EXERCISE 44

(A) Subtract.

(B) Subtract.

(1) 483mℓ from 598mℓ

(2) 560ℓ from 1000ℓ

(3) 450mℓ from 630mℓ

(4) 380ℓ from 490ℓ

Solve real life problems involving same units of volume for subtraction with and without borrowing

Example :

A milk man had 208 ℓ of milk. He sold 195 ℓ of milk in a day. How much milk was left with him?

Solution:

Total milk	=	$\overset{1\ 10}{\cancel{2}\cancel{0}8}$ ℓ
Milk sold	=	− 1 9 5 ℓ
Remaining milk	=	1 3 ℓ

Therefore, **13 ℓ** milk was left with milk man.

EXERCISE 45

(1) A tailor master has a bottle of machine oil contain **550** $m\ell$. In one month he uses **220** $m\ell$. How much oil is left?

(2) Fuel tank of a truck holds **240** ℓ of oil. Out of which **198** ℓ of petrol is used for a journey. How much petrol is left in the tank?

(3) There was **1200** ℓ water in a tank. Out of which **1185** ℓ of water was used. How much water is left in the tank?

(4) There was **1400** ℓ of milk in milk pots. Milkman sold **750** ℓ. How much milk is left in the pots?

Unit 5

TIME

5.1 UNITS OF TIME

We have learnt that:

- 1 hour = 60 minutes
- 1 day = 24 hours
- 1 week = 7 days
- 1 month = 30 days
- 1 year = 12 months

Time in the clock is

Fill in the blanks:

(1) 1 hour = ☐ minutes

(2) Quarter hour = ☐ minutes

(3) Half hour = ☐ minutes

(4) 1 day = ☐ hours

(5) 2 days = ☐ hours

(6) 3 weeks = ☐ days

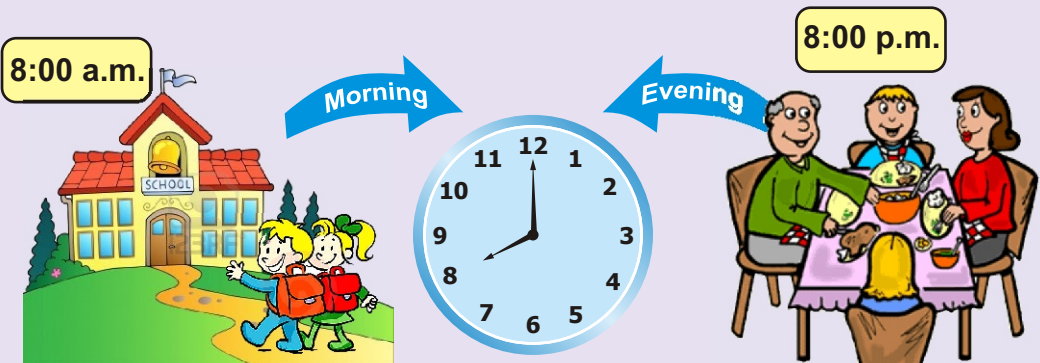
(7) Half Month = ☐ days

(8) 2 years = ☐ months

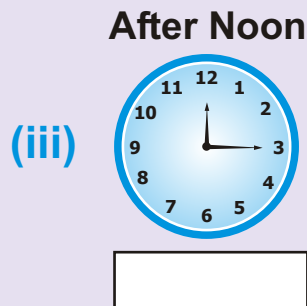
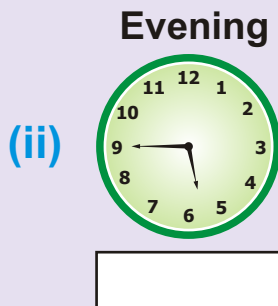
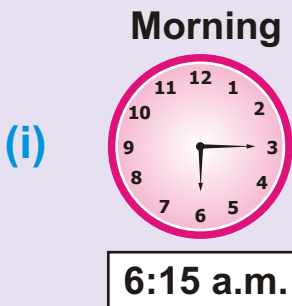
Teacher's Note Teacher should revise the units of time.

Use a.m. and p.m. to record the time for 12-hours clock

- There are 12 numbers shown on analog clock.
- Hour hand makes two rounds of 12 hours to completea day.
- A day is divided into two equal parts of 12 hours each.

The time from 12'O clock midnight to 12'O clock noon is called a.m.	The time from 12' O clock noon to 12'O clock midnight is called p.m.

EXERCISE 46

(1) Write the time in a.m. or p.m. as shown in the clock.

Teacher's Note Teacher should help the students in using a.m and p.m to record the time.

(iv) Early Morning

(v) Evening

(vi) Before Midnight

(vii) After Noon

(viii) Late Night

(ix) Night

(2) Write the time as a.m. or p.m.

(i) 50 minutes past 8'o clock in the morning. It is 8:50 a.m

(ii) Quarter to 4'o clock in the evening. It is ______

(iii) Half past 10'o clock in the night. It is ______

(iv) Quarter to 2'o clock after midnight. It is ______

(v) Half past 6'o clock in the morning. It is ______

(vi) Quarter to 4'o clock early in the morning. It is ______

(3) Write equivalent time by removing a.m. and p.m. in the following:

(i) 6:20 a.m. = Twenty minutes past 6'o clock in the morning.

(ii) 7:15 p.m. = ______

(iii) 6:30 a.m. = ______

(iv) 9:45 p.m. = ______

Read and Write time from analog and digital clocks

Let us revise what we have done in previous class. Observe and read the time in following clocks.

Analog Clock	Digital Clock
10 past 4	04 : 10 Four-ten
15 past 6 or quarter past 6	06 : 15 Six-fifteen
45 past 9 or quarter to 10	09 : 45 Nine-forty five

Activity Write the time shown in every clock from the following:

Analog Clock and Digital clock Showing the time in a.m. and p.m.		Complete the Sentences
8:00 a.m.	2:00 P.M	(i) I go to school at 8:00 a.m. (ii) I return from school at ________
7:00 A.M	2:30 p.m.	(i) I brush my teeth in the morning at ________ (ii) I take my lunch at ________
7:30 a.m.	9:30 P.M	(i) I take brake fast at ________ (ii) I take dinner at ________

EXERCISE 47

Read and write the time:

(1)

12:55

55 past 12

(2)

(3)

(4)

(5) 9:25 A.M

(6) 11:30 A.M

(7) 3:40 P.M

(8) 5:15 P.M

Read and Write days and dates from the calendar

We have already learnt about the number of months and their names in calendar.

In solar calendar, there are 365 days in a year. A year which is exactly divisible by 4 is called a leap year. For example 2000, 2004, 2008, 2012, 2016, 2020 are some leap years. A leap year has 366 days. The month of February in a leap year is of 29 days. Let us now learn to read and tell the day and date of a particular month.

Model Calendar

JANUARY

Mon	Tue	Wed	Thu	Fri	Sat	Sun
*	*	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	*	*

FEBRUARY

Mon	Tue	Wed	Thu	Fri	Sat	Sun
*	*	*	*	*	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	*	*

MARCH

Mon	Tue	Wed	Thu	Fri	Sat	Sun
31	*	*	*	*	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

APRIL

Mon	Tue	Wed	Thu	Fri	Sat	Sun
*	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	*	*	*	*

MAY

Mon	Tue	Wed	Thu	Fri	Sat	Sun
*	*	*	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	*

JUNE

Mon	Tue	Wed	Thu	Fri	Sat	Sun
30	*	*	*	*	*	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

JULY

Mon	Tue	Wed	Thu	Fri	Sat	Sun
*	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	*	*	*

AUGUST

Mon	Tue	Wed	Thu	Fri	Sat	Sun
*	*	*	*	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SEPTEMBER

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	*	*	*		*

OCTOBER

Mon	Tue	Wed	Thu	Fri	Sat	Sun
*	*	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	*	*

NOVEMBER

Mon	Tue	Wed	Thu	Fri	Sat	Sun
*	*	*	*	*	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

DECEMBER

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	*	*		*

Teacher's Note

Teacher should explain the students about calendar and also tell the concept of leap year.

Date from calendar can be written as:

Day - Month - Year or Day/Month/Year or Day.Month.Year

Example: We can write.

14th August 1947 as 14-08-1947 or 14.08.1947

Look at the calendar.

SEPTEMBER						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	*	*	*	*	*

(1) Colour the Sundays

(2) Colour the Wednesday

(3) Colour the Fridays

(4) What day is September 8th? ____________

(5) What day is September 12th? ____________

(6) What day is September 23rd? ____________

EXERCISE 48

(A) Look at the current calendar and write the days on the following dates:

	Date	Day
(1)	23rd March	
(2)	11th September	
(3)	31st March	
(4)	6th September	
(5)	27th April	
(6)	9th November	

(B) Look at the calendar 2014 and answer the following questions:

(1) Which day is on 23rd March? ______________________

(2) Which day is on 14th August? ______________________

(3) How many Fridays are in June ? _______________

(4) What is the date of your birth day? ☐ ☐ ☐

(5) Tell the names of months having 31 days?

____

____

(6) Which is the last day of the year? ____________________

5.2 ADDITION OF UNITS OF TIME

Add units of time in hours

Example: Add 5 hours and 2 hours.

Solution:

  5 hours
+ 2 hours
―――――
  7 hours
―――――

EXERCISE 49

(A) Solve the following:

(1)   4 hours
    + 3 hours
    ―――――
    ―――――

(2)   12 hours
    + 17 hours
    ―――――
    ―――――

(3)   25 hours
    + 16 hours
    ―――――
    ―――――

(4)   32 hours
    + 18 hours
    ―――――
    ―――――

(5)   36 hours
    + 25 hours
    ―――――
    ―――――

(6)   29 hours
    + 38 hours
    ―――――
    ―――――

(B) Add:

(1) 32 hours and 22 hours.
(2) 14 hours and 12 hours.
(3) 108 hours and 117 hours.
(4) 125 hours and 135 hours.
(5) 385 hours and 323 hours.
(6) 480 hours and 342 hours.

Solve real life problems involving units of time for addition in hours

Example 1: In January, Nadeem played 26 hours hockey and 13 hours cricket. What is the total time he spent in play for the month of January?

Solution:

Played hockey	**26 hours**
Played cricket	**+ 13 hours**
Total time spent	**39 hours**

EXERCISE 50

(1) In a month Bilal spent for 13 hours at his grand mother's home. He spent 4 hours at aunt's place. How long did he spend at the two homes?

(2) A farmer took 53 hours to reap wheat crop and 68 hours to reap rice crop in a week. How much time he spent altogether?

(3) Alesha's mother cooked lunch in 3 hours and dinner in 4 hours for guests. What is the total time she spent in cooking?

(4) In rainy season, on Wednesday rain for 2 hours, on Thursday for 4 hours and on Friday for 3 hours. What is the total time of rain in three days.

5.3 SUBTRACTION OF UNITS OF TIME

Subtraction of units of time in hours

Example: Subtract 8 hours from 10 hours.

Solution:

```
   10 hours
 – 8 hours
 ---------
   2 hours
 ---------
```

EXERCISE 51

(A) Solve the following:

(1) 5 hours − 4 hours = ______

(2) 12 hours − 7 hours = ______

(3) 22 hours − 18 hours = ______

(4) 37 hours − 22 hours = ______

(5) 33 hours − 14 hours = ______

(6) 49 hours − 39 hours = ______

(B) Subtract:

(1) 6 hours from 12 hours.

(2) 6 hours from 48 hours.

(3) 145 hours from 165 hours.

(4) 195 hours from 300 hours.

(5) 486 hours from 723 hours.

(6) 578 hours from 995 hours.

Solve real life problems involving subtraction of units of time in hours

Example: Saleem travelled from Karachi to Sukkur in 8 hours b road. Ahmed travelled from Karachi to Lahore in 18 hours. Who travelled more and how much?

Solution:

Ahmed travelled	**18 hours**
Saleem travelled	**– 8 hours**
	10 hours

So, Ahmed travelled 10 hours more than Saleem.

EXERCISE 52

(1) A bus took 8 hours and a car took 6 hours to travel from Sukkur to Hyderabad. Which vehicle is faster and how much?

(2) Majida takes 22 hours to make two dresses. If she makes one in 15 hours. How much more time she take to make the other dress?

(3) Ahsan reads a story book in 5 hours and Azeem reads the same book in 9 hours. Who took more time to read the book and how much?

(4) A T.V channel - A relay 14 hours game programme while another T.V channel - B relay 20 hours. Find who relay games more time and how much?

(5) Saira's family left Hyderabad at 5:00 p.m and reached at Karachi at 7:30 p.m. How much time did they travelled?

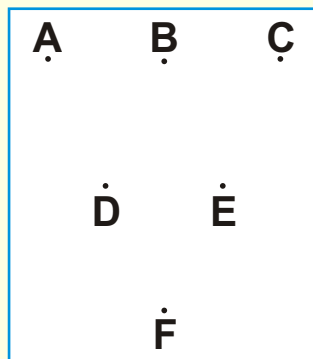
Unit 6

GEOMETRY

6.1 GEOMETRICAL SHAPES

Recognize point, line segment and ray

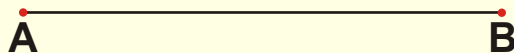
Point

It used for representing of position of any place. Capital letters A,B,C, . . ., X, Y, Z are used to show the points. We can draw many points on a plain paper.

We can read them:

Point A, Point B, Point C, . . . Point Z.

Line Segment

A line segment is a straight path between two points. Here point A and point B are called end points.

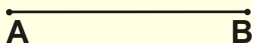
A ———————— B

We can call it either line segment AB or line segment BA. symbolically, we can write it as:

$\overline{AB}$ or $\overline{BA}$

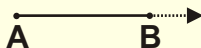
> $\overline{AB}$ is read as line segment AB and BA is read as line segment BA.

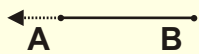
Ray

Take a line segment $\overline{AB}$.

A ——— B

Now extend one end point of it, say point B in forward direction. Draw an arrow mark. We get the figure

A ——— B ····►

Teacher's Note Teacher should give the concept of point, line segment and ray by drawings.

It is called ray AB. In symbol, it is written as $\overrightarrow{AB}$.

A ray has one end point. In $\overrightarrow{AB}$ has A is end point. Similarly we can draw $\overrightarrow{BA}$, B is end point.

A ray is formed by drawing an arrow mark on one end point of a line segment. P Ray PQ Q A ray has only one end point. The length of ray cannot be measured.

Activity **Tick (✓) the line segments and cross (✗) the rays. Also encircle(○) the points in each.**

S T

B C

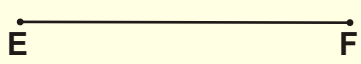
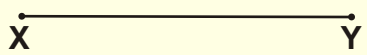
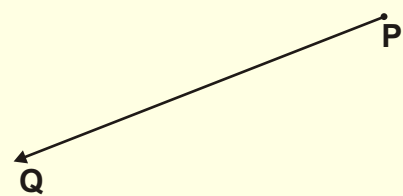
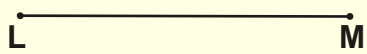
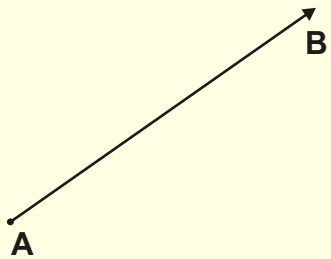
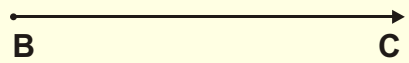
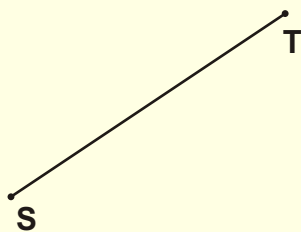
L M

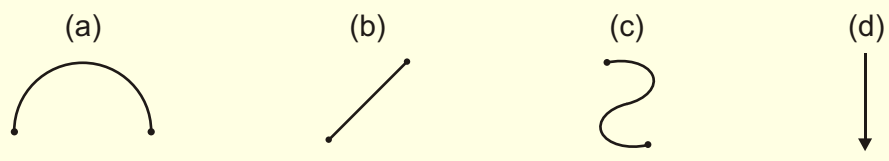
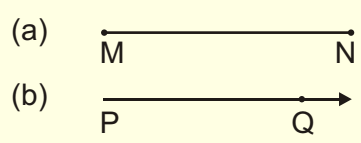
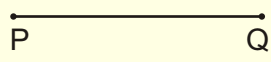
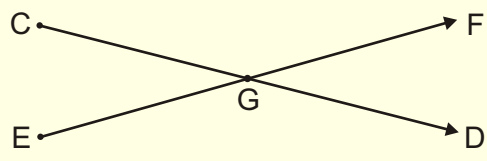
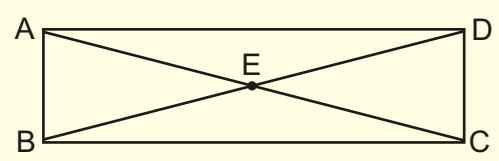
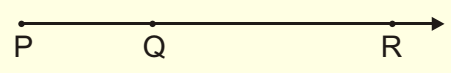
A B

M N

P Q

X Y

E F

EXERCISE 53

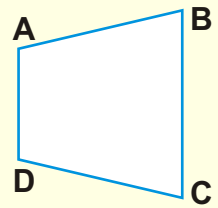
(1) Tick (✓) the line segment and cross the ray.

(2) Write the end points of these figures.

(3) Write the name of this line segment in two ways:

(4) $\overrightarrow{CD}$ cross $\overrightarrow{EF}$ at what point?

(5) Write the names of four line segments that have point A as common end point.

(6) Write the names of all the rays and line segments shown in the figure.

Classify figures according to number of sides as quadrilaterals (rectangles, squares) and triangles

Quadrilateral

A quadrilateral is a closed figure. It has four sides and four vertices.

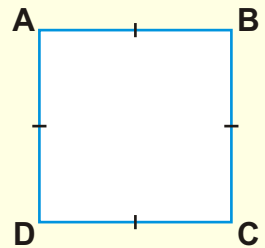
ABCD is a quadrilateral. Its sides are $\overline{AB}$, $\overline{BC}$, $\overline{CD}$ and $\overline{DA}$.

Points A, B, C and D are vertices.

Squares and rectangles are quadrilateral.

Square

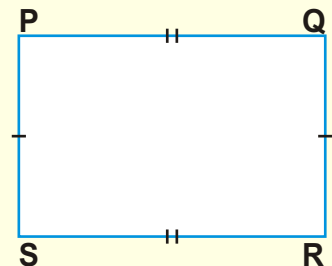
A quadrilateral whose four sides are equal in measure is called a square. ABCD is square.

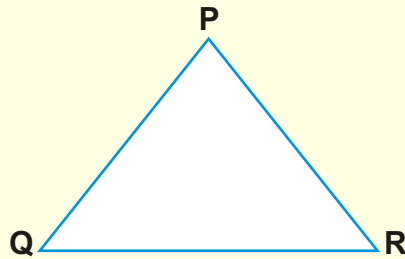
$\overline{AB} = \overline{BC} = \overline{CD} = \overline{DA}$

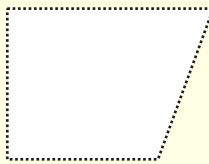
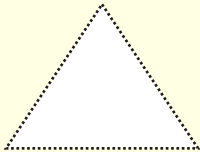
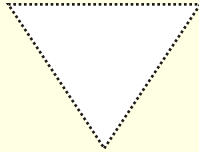
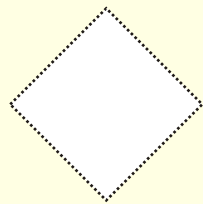
A square has four vertices ABC and D.

Rectangle

A quadrilateral whose opposite sides are equal is called a Rectangle. PQRS is a rectangle in which $m\overline{PQ} = m\overline{RS}$ and $m\overline{PS} = m\overline{QR}$

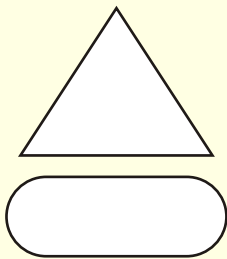
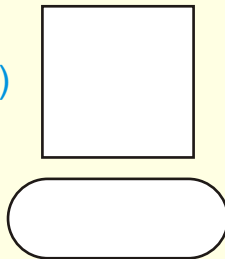
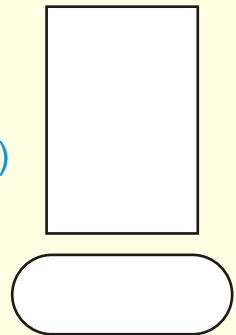
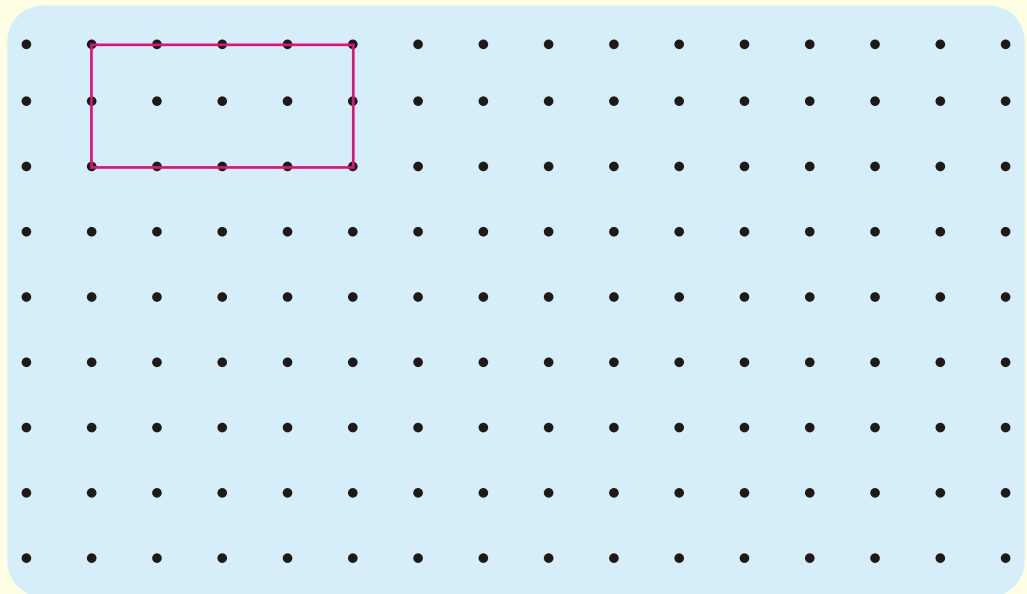
A rectangle has four vertices P,Q,R and S.

Teacher's Note Teacher should revise the definition of square, rectangle and triangles.

Triangles

A triangle PQR is a closed figure having three sides $\overline{PQ}$, $\overline{QR}$ and $\overline{RP}$.

The points P,Q and R are called the vertices of the triangle PQR.

Name the following quadrilaterals by joining dots. also name these shapes.

(a) (b) (c)

(d) (e) (f)

EXERCISE 54

(1) Name the following figures:

(i)

(ii)

(iii)

(2) Draw two rectangles, two squares and two triangles by joining the given dots.

(3) Complete the following sentences by Square, Rectangle, Triangle.

(i) A plain figure bounded by 4 straight lines is called________.

(i) A closed figure bounded by 3 sides is______________.

(iii) Opposite sides of a ________ are equal in measure.

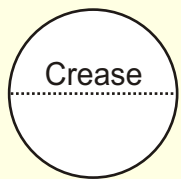
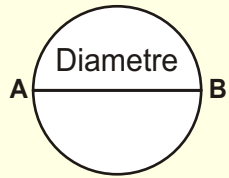
(iv) All sides of a ________ are equal in measure.

(v) A quadrilateral whose opposite sides are equal is___________.

Identify circle, its radius and diameter

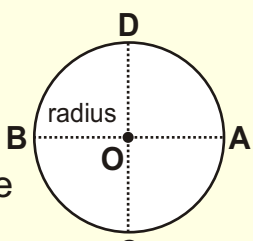
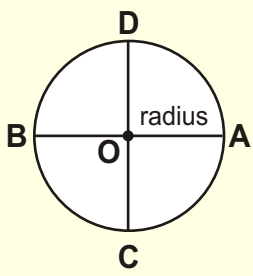
Look at the picture of a coin of Rs 5
It has a **circular** shape.
There is no side and no vertex in a **Circle**.

Diametre

Take a circular piece of paper, fold it. So, that it is divided into two equal parts.

Draw a line in crease. This represents a line segment and such line segment is called **diameter** of the circle. Name the end points A and B and write as $\overline{AB}$. $\overline{AB}$ is diametre of the circle.

Radius

Now fold the circular strip two times. So, that it is divided in four equal parts.

Now unfold and observe the crease. Join line and point of the creases. Name them as $\overline{AB}$ and $\overline{CD}$.

Two line segments $\overline{AB}$ and $\overline{CD}$ meet each other at one point (O). This point is called centre of the circle. The distance from this point O to boundary of the circle is called **radius**.

O is the centre of the circle and $\overline{OA}$ is its radius.
$\overline{AB}$ and $\overline{CD}$ are diameters of the circle.

Diameter of a circle is twice of its radius.

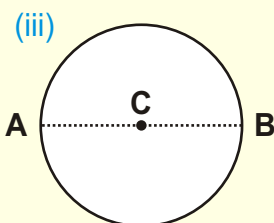
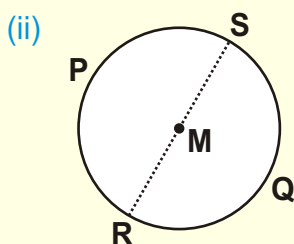
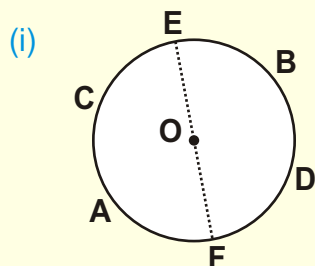
EXERCISE 55

(1) Name centre, radius and diameters in the following:

(i)

E B C O D A F

(ii)

(iii)

(i)	(ii)	(iii)
Centre O	Centre	Centre ....
Diameter $\overline{EF}$	Diameter	Diameter ....
Radius $\overline{EO}$, $\overline{OF}$	Radius	Radius ....

(2) Name diameters and radius of the following circles.

(i)

Diameter = ☐

Radius = ☐

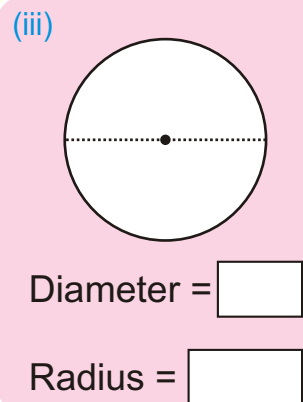
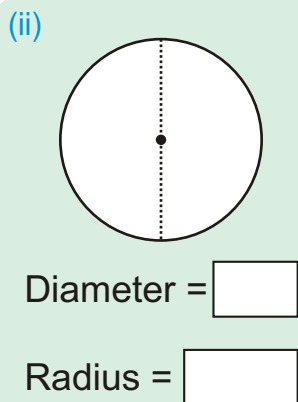
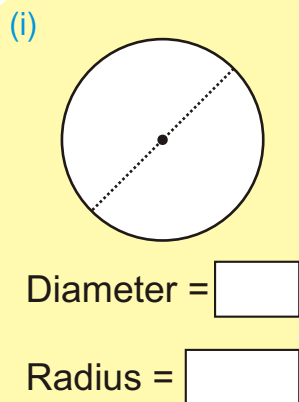
(ii)

Diameter = ☐

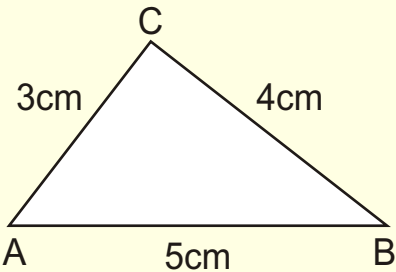
Radius = ☐

(iii)

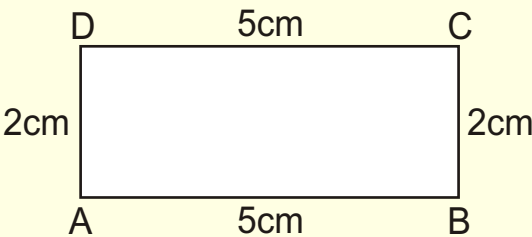
Diameter = ☐

Radius = ☐

Calculate perimeters of squares, rectangles and triangles.

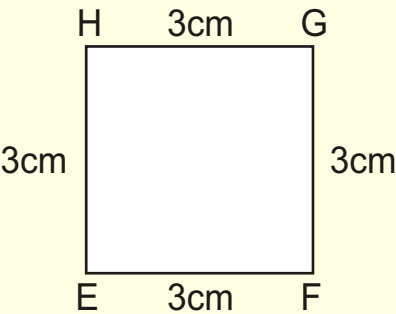
Perimeter

It is a triangle. It has three line segments.
Line segment AB is 5cm long;
line segment BC is 4 cm long and
line segment CA is 3 cm long.
The sum of these lengths is
5cm + 4cm + 3cm = 12cm.
This sum is called **perimeter**.

The total length of all sides of any figure is called its **perimeter.**

Example 1: Find the perimeter of the rectangle.

Solution:

Line segment AB	=	5 cm
Line segment BC	=	2 cm
Line segment CD	=	5 cm
Line segment DA	=	+ 2 cm
Perimeter	=	14 cm

Example 2: Find the perimeter of the square.

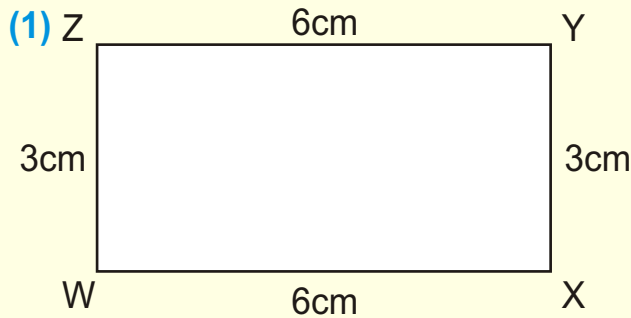
Solution:

Line segment EF	=	3 cm
Line segment FG	=	3 cm
Line segment GH	=	3 cm
Line segment HE	=	+ 3 cm
Perimeter	=	12 cm

Teacher's Note

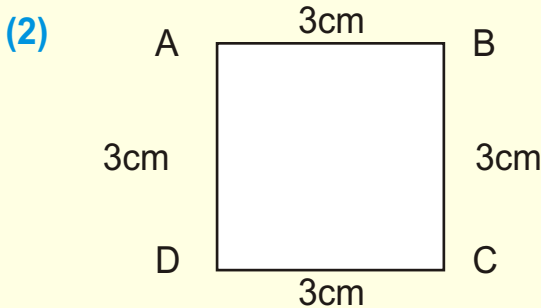
Teacher should help the students to understand the concept of perimeter.

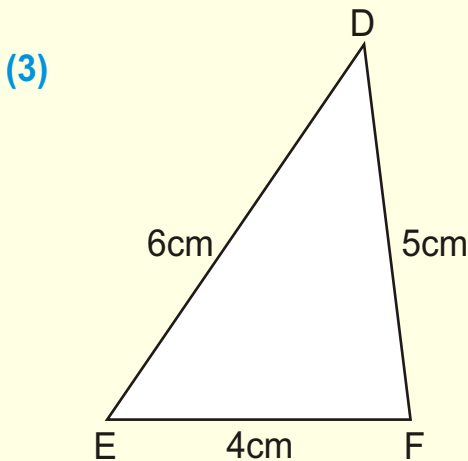
EXERCISE 56

Find the perimeter of following figures.

(1)

Line segment ZY = ...cm
Line segment YX = ...cm
Line segment XW = ...cm
Line segment WZ = ...cm
Perimeter = ...cm

(2)

A 3cm B
3cm 3cm
D 3cm C

Line segment AB = ...cm
Line segment BC = ...cm
Line segment CD = ...cm
Line segment DA = ...cm
Perimeter = ...cm

(3)

Line segment EF = ...cm
Line segment FD = ...cm
Line segment DE = ...cm
Perimeter = ...cm

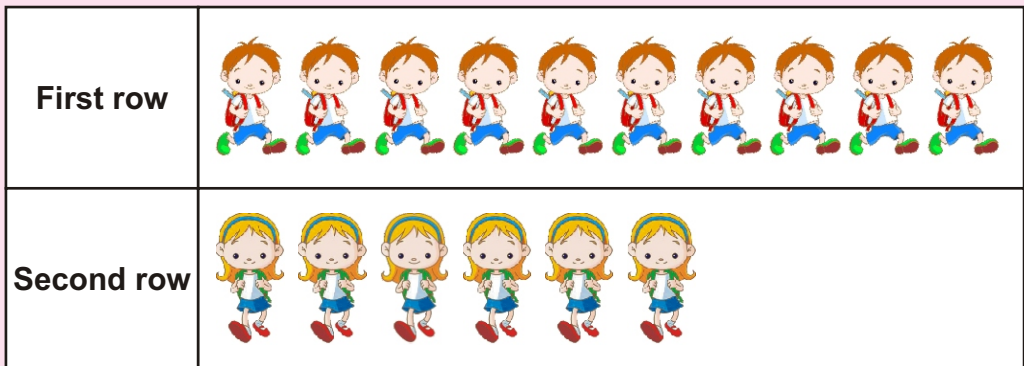
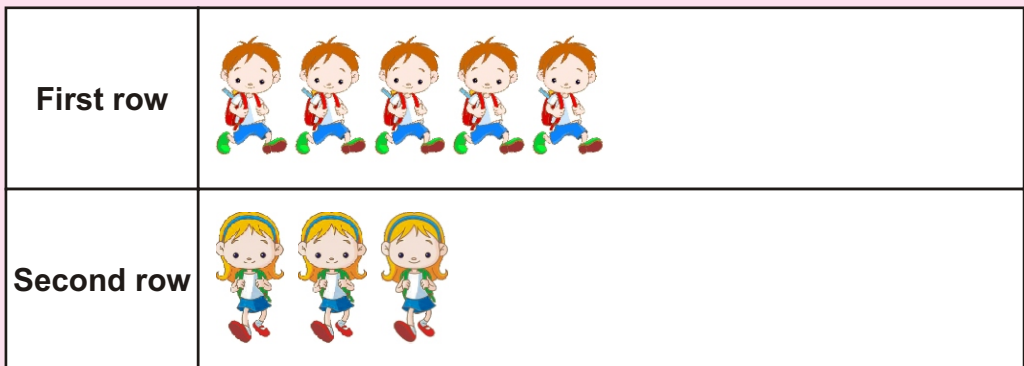
(4) A Square shape table has each side 38 cm. Find perimeter of surface of the table.

(5) The length and breadth of a window is 75 cm and 50 cm respectively. Find its perimeter.

DATA REPRESENTATION

7.1 PICTURE GRAPH

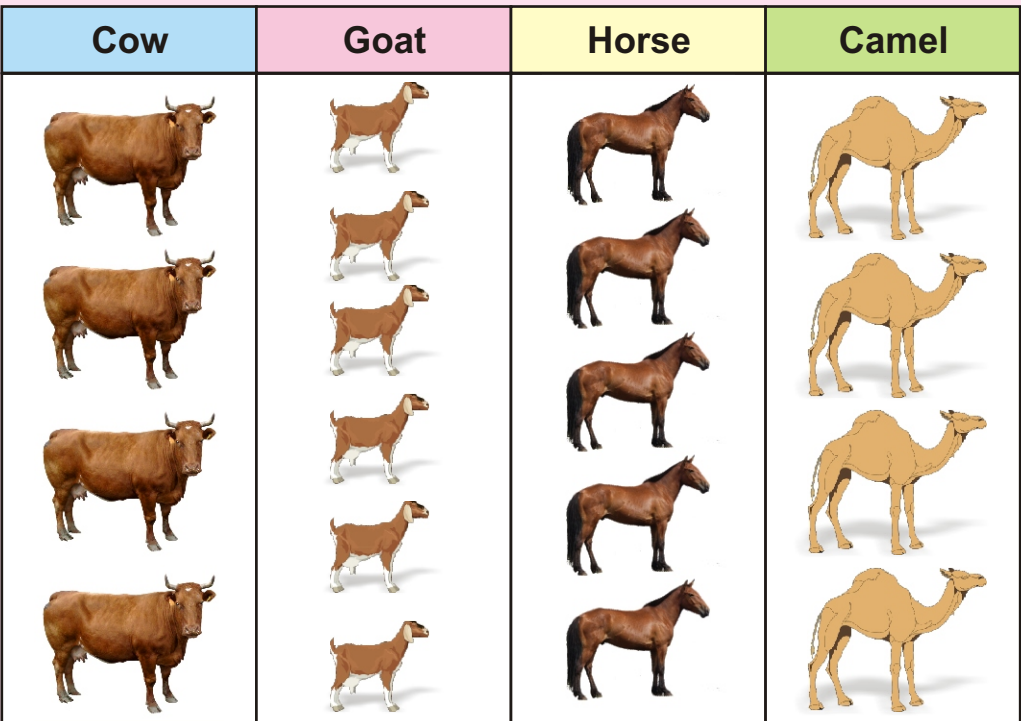
Read and interpret a picture graph

Look at the picture.
There are 10 boys in the first row and 6 girls in the second row.
This information can be shown in picture as follows.

Here we can tell the number of boys or girls simply by counting in 2's. The same information can be shown briefly as follow.

Here represents **2 boys**.	So, there are 10 boys in first row.
and represents **2 girls**.	So, there are 6 girls in second row.

This is **picture graph.**

Teacher's Note Teacher should help the students understand the reading of a Picture graph by using other symbols.

This picture graph represents the number of different animals in a farm.

Cow	Goat	Horse	Camel

One represents 2 cows.	One represents 5 goats.
One represents 2 horses.	One represents 5 camels.

Read the picture graph and answer the following:

(1) How many cows are there in the farm? 4 x 2 = 8

(2) How many goats are there in the farm? 6 x 5 =

(3) How many horses are there in the farm? 5 x 2 =

(4) How many camels are there in the farm? 4 x 5 =

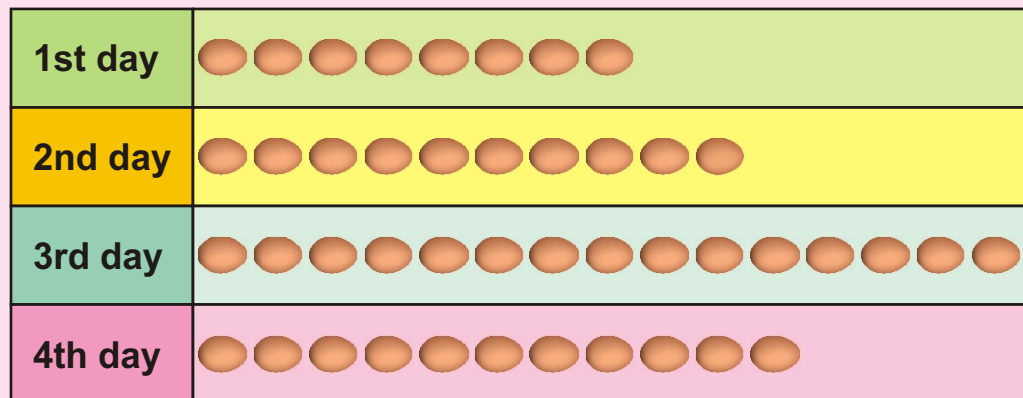
(5) What is the total number of animals?

Teacher's Note Teacher should help the students for solving the activity.

EXERCISE 57

(A) The following picture graph shows the number of eggs sold by a shopkeeper in four days.

One 🥚 represents 5 eggs.

1st day	🥚🥚🥚🥚🥚🥚🥚🥚
2nd day	🥚🥚🥚🥚🥚🥚🥚🥚🥚🥚
3rd day	🥚🥚🥚🥚🥚🥚🥚🥚🥚🥚🥚🥚🥚🥚🥚
4th day	🥚🥚🥚🥚🥚🥚🥚🥚🥚🥚🥚

Read the above graph and answer the following questions:

(1) How many eggs are sold on the last day?

(2) On which day the least number of eggs are sold?

(3) On which day the highest number of eggs are sold?

(4) How many eggs are sold in first two days?

(5) What is the difference in the number of eggs sold in last two days?

(B) **The following graph shows the number of animals in the zoo.**

Here each picture represents 2 animals.

Lion	Deer	Monkey	Fox	Rabbit	Elephant

Look at the picture graph and answer the following:

(1) How many lions are there?

(2) How many animals are there altogether?

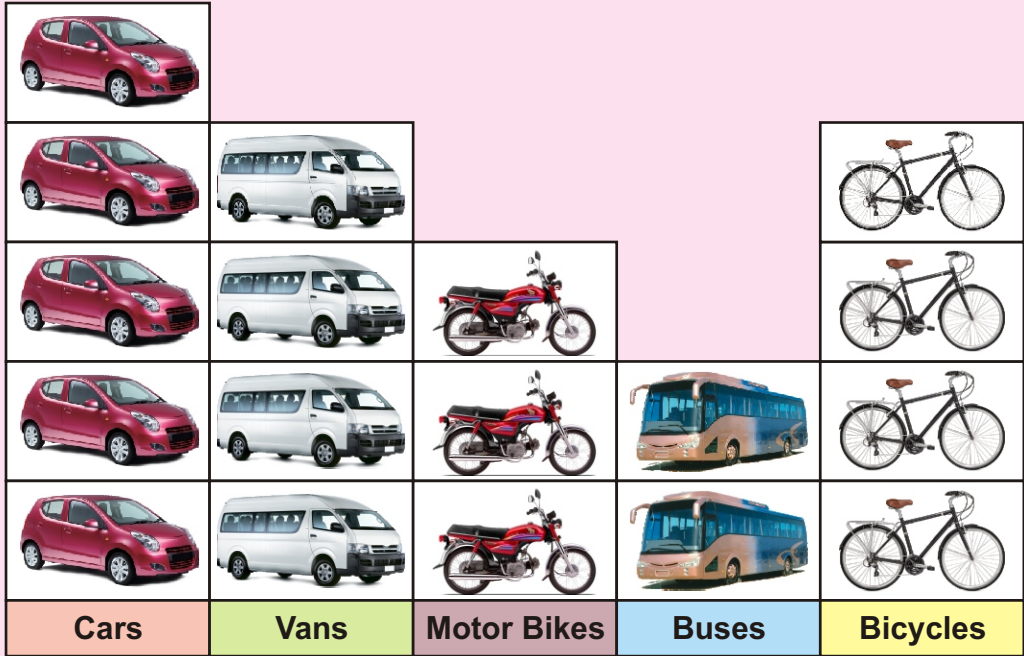
(3) How many more foxes are there than elephants?

(4) Haw many different types of animals are there?

(5) Which animals are most in number?

(6) Which animals are least in number?

(C) **Following is picture graph of the traffic passing through a signal.**

One picutre = 10 vehicles

Now look at the graph and answer the following questions:

(1) Which vehicles are more in numbers?

(2) Which vehicle are least in numbers?

(3) How many buses passed through the signals?

(4) How many motor bikes passed through the signals?

(5) How many vans and bicycles passed altogether?

(6) How many more cars passed than the buses?

Addition: Symbol +; the process of finding sum of two numbers/quantities.

Capacity: The amount of liquid a container can hold.

Centimetre: A unit of length, 100 centimetres (cm) = 1 metre (m)

Circle: A plane shape bounded by a single curved line where all of its points are at equal distance from a fixed point.

Currency: Money in any form.

Division: Process of finding quotient of two number/quantities. (The repeated subtraction).

Denominator: Lower number of the common fraction.

Diametre: A half circle's line segment is called diametre of the circle Diametre.

Even numbers: The numbers having 0,2,4,6,8 at their units place.

Edge: A one dimensional line segment joining two vertices.

Fraction: Equal parts of a whole.

Gram: Unit of mass.

Graph: A pictorial representation of a data.

Hours: 24^{th} part of the day, 60 minutes. A unit of time

1 hour = 60 minutes

Improper fraction: A fraction whose numerator is greater than the denominator.

Kilogram: A unit of mass. **1 kilogram (kg) = 1000 grams (g)**

Litre: Unit of volume/capacity. **1 litre (ℓ) = 1000 millilitres ($m\ell$)**

Line segment: Shortest distance between two points. A B

Line: A B This figure represents a line AB.

Lunar Calendar: (Hijrah Qamri Calendar) Islamic Calendar in a solar year.

Multiplication: The process of finding product of two numbers/quantities (Repeated Addition).

Mass: Quantity of matter present in a body.

Millilitre: Thousandth part of a litre.

Millimetre: Thousandths part of a metre.

Minute: Sixtieth part of an hour. **1 minute = 60 seconds**

Month: A unit of time. **1 month = 30 days**

Numerator: Upper number of common fraction.

Odd numbers: The numbers having 1, 3, 5, 7, 9 at their units place.

Place value: Value of a digit of a number according to its place.

Proper fraction: A fraction whose numerator is less than the denominator.

Paisa: Unit of Pakistani currency.

Point: A small dot used for location of a place on any surface.

Quadrilateral: A four sided closed figure.

Remainder: The number left over when one integer is divided by another.

Ray: An arrow mark on one end point of a line segment

A Ray AB B

Rectangle: A quadrilateral whose opposite sides are equal and have four right angles.

Radius: The distance from the centre of the circle to the boundary of the circle.

Rupee: Unit of Pakistani currency.

Ruler: A straight edge used to measure distances.

Symbol: A sign used to represent an operation, element or relation.

Square: A quadrilateral whose all four sides are equal and has four right angles.

Subtraction: Symbol (–). The process of finding the difference between two numbers/quantities.

Second: Unit of time, $\frac{1}{60}$ the part of a minute.

Solar Calendar: In this calendar, the dates indicates the position around the sun (365 days in a year).

Triangle: A three sided closed figure.

Unit: A list or sequence with only one element.

Vertex: An angular point of any shape.

Week: A unit of time. **1 week = 7 days**

Year: A unit of time. **1 year = 365 days**

ANSWERS

EXERCISE 1

(1) V, VII, XI, IX, VIII, XVI, XVII, XX

(2) 3, 4, 6, 10, 2, 15, 12, 19

(3) II, IV, V, VII, VIII, IX, XI, XII, XIV, XV, XVI, XVIII, XIX, XX

(6) I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI, XVII, XVIII, XIX, XX

EXERCISE 2

(3) 2, 4, 6, 8, 10, 12, 14, 16, 18

(4) 1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21

(5) 32, 34, 36, 38, 40 (6) 51, 53, 55, 57

(7) 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 78, 80

(8) 71, 73, 75, 77, 79, 81, 83, 85, 87, 89

(9) i. False ii. False iii. True iv. True

EXERCISE 4

(1)
i. Four thousand one hundred fifty six
ii. Thirty five thousand six hundred seventy eight
iii. Nine hundred eighty one thousand two hundred fifty four
iv. Five thousand sixty
v. Seven thousand one hundred twenty
vi. Three hundred fifty six thousand seven hundred eighty two
vii. Forty one thousand five hundred twenty four
viii. One hundred twenty three thousand four hundred fifty six

(2) i. 72695 ii. 962050 iii. 40007

(4) i. 5124, 6124, 7124 ii.51457, 51467, 51477
iii. 423456, 523456, 623456

EXERCISE 5

(1) i. < ii. > iii. = iv. < v. > vi. <

(2) i. < ii. > iii. = iv. >

EXERCISE 6

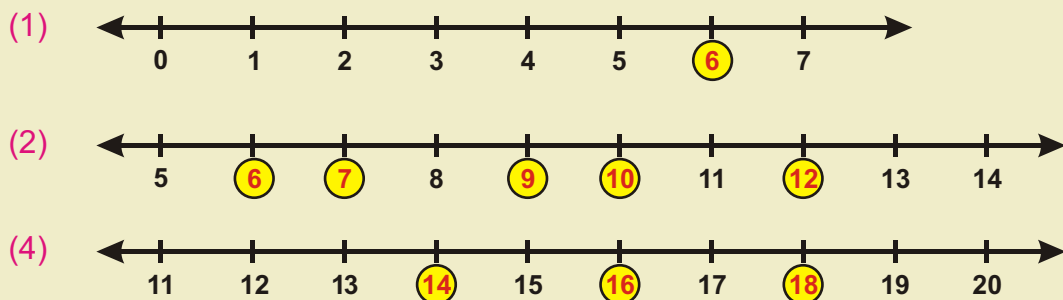
(1) i. 476, 5034, 7881, 523241 ii. 1778, 2346, 2354, 4632
iii. 3451, 41353, 43513, 53314

(2) i. 7120, 6432, 4343, 3213 ii. 94321, 49321, 31249, 12349
iii. 120451, 57401, 12345, 10000

EXERCISE 7

(1) 0 1 2 3 4 5 **6** 7

(2) 5 **6** **7** 8 **9** **10** 11 **12** 13 14

(4) 11 12 13 **14** 15 **16** 17 **18** 19 20

EXERCISE 8

1. 67 2. 455 3. 89 4. 199 5. 719
6. 1087 7. 1020 8. 923 9. 813 10. 49
11. 185 12. 938 13. 749 14. 769 15. 500

EXERCISE 9

(A) 1. 3885 2. 4795 3. 9778 4. 8886 5. 9678
6. 5999 7. 7969 8. 9897 9. 8899

(B) 1. 6537 2. 7535 3. 5859 4. 7796
5. 9897 6. 9839 7. 3765

EXERCISE 10

(A) 1. 8020 2. 8071 3. 10183
4. 5891 5. 8706 6. 6659

(B) 1. 7020 2. 5692 3. 12350 4. 7431

(C) 1. 5083 2. 4724 3. 6504 4. 6432

EXERCISE 11

(A) 1. 19 2. 21 3. 24 4. 33
5. 28 6. 43

(B) 1. 45 2. 43 3. 60 4. 36
5. 70 6. 80

EXERCISE 12

1. 1362 pages 2. 2200 m 3. 7986 population
4. 5793 visitors 5. 378 pages 6. 777 students
7. 8000 soft drinks 8. 10,000 rupees

EXERCISE 13

1. 41 2. 22 3. 601 4. 322
5. 322 6. 223 7. 178 8. 147
9. 59 10. 513 11. 759 12. 187

EXERCISE 14

(A) 1. 1237 2. 7234 3. 4442 4. 5522 5. 2212
6. 4633 7. 3402 8. 1533 9. 1123

(B) 1. 2112 2. 3411 3. 2344 4. 4322 5. 4222

EXERCISE 15

(A) 1. 2168 2. 3361 3. 1436 4. 1205 5. 2771
6. 3969 7. 1358 8. 1124 9. 1336

(B) 1. 5113 2. 844 3. 991 4. 4177

(C) 1. 4039 2. 4028 3. 1099 4. 1771

ANSWERS

EXERCISE 16

(1) i. 9 ii. 62 iii. 66 iv. 63 v. 21 vi. 66

(2) i. 31 ii. 6 iii. 38 iv. 25 v. 49 vi. 53
vii. 79 viii. 13

(3) i. 6 ii. 5 iii. 22

EXERCISE 17

1. 370 chocolates
2. Rs 500
3. 514 cars
4. Rs 2055
5. 2638 cookies
6. 4629

EXERCISE 18

(A) 2. 12 3. 9 4. 35 5. 45 6. 24
7. 8 8. 18 9. 16 10. 18

(B) 2. 16 3. 30 4. 24 5. 70

EXERCISE 19

(A) 1. 28 2. 62 3. 84 4. 48 5. 69
6. 70 7. 66 8. 318 9. 332

(B) 1. 26 2. 256 3. 115 4. 132
5. 147 6. 45 7. 195 8. 84

EXERCISE 21

1. 20 2. 30 3. 42 4. 54 5. 108
6. 112 7. 143 8. 208 9. 621 10. 928
11. 1400 12. 4875 13. 1215 14. 952 15. 1659
16. 2975 17. 2300 18. 3800

EXERCISE 22

1. 90 motor bikes
2. 280 weeks
3. 48 birds
4. 378 chocolates
5. 144 scoops
6. 150 books

EXERCISE 23

(A) 1. 7 2. 9 3. 8 4. 9 5. 3
6. 9 7. 12 8. 17 9. 19 10. 15

(B) 1. 5 2. 7 3. 8 4. 10 5. 9
6. 8 7. 15 8. 33 9. 13 10. 19
11. 13 12. 25

(C) 2. Quotient 3. Divisor 4. Quotient
5. Divisor 6. Dividend

EXERCISE 24

1. 7 2. 9 3. 7 4. 20 pages
5. 7 copies 6. 3 litres 7. 9 toffees

EXERCISE 25

1. 20 packets 2. 16 boxes 3. 3 teams
4. 7 boxes 5. 14 kg

EXERCISE 26

(A) 1. $\frac{1}{4}$ 2. $\frac{7}{10}$ 3. $\frac{2}{3}$ 4. $\frac{3}{7}$ 5. $\frac{5}{12}$ 6. $\frac{5}{7}$

(C) 1. $\frac{4}{11}$ 2. $\frac{7}{8}$

EXERCISE 27

(1) (i) $\frac{2}{4}, \frac{1}{3}, \frac{3}{6}, \frac{1}{2}$ and $\frac{2}{4} = \frac{3}{6} = \frac{1}{2}$

(ii) $\frac{1}{2}, \frac{2}{4}, \frac{2}{6}, \frac{3}{6}$ and $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$

(iii) $\frac{2}{5}, \frac{3}{6}, \frac{2}{4}, \frac{1}{2}$ and $\frac{3}{6} = \frac{2}{4} = \frac{1}{2}$

(2) (i) $\frac{2}{8}, \frac{3}{12}, \frac{4}{16}$ (ii) $\frac{4}{6}, \frac{6}{9}, \frac{8}{12}$ (iii) $\frac{6}{8}, \frac{9}{12}, \frac{12}{16}$

(iv) $\frac{8}{10}, \frac{12}{15}, \frac{16}{20}$ (v) $\frac{2}{10}, \frac{3}{15}, \frac{4}{20}$ (vi) $\frac{4}{12}, \frac{6}{18}, \frac{8}{24}$

EXERCISE 28

(A) 1,2,5 are Proper fraction

(B) 1. < 2. > 3. < 4. > 5. =
6. > 7. < 8. > 9. =

EXERCISE 29

(A) 1. $\frac{2}{3}$ 2. $\frac{4}{5}$ 3. $\frac{3}{4}$ 4. $\frac{5}{6}$ 5. $\frac{6}{7}$
6. $\frac{7}{8}$ 7. $\frac{9}{9}$ 8. $\frac{9}{11}$ 9. $\frac{13}{15}$ 10. $\frac{17}{18}$
11. $\frac{13}{14}$ 12. $\frac{19}{20}$

(B) 1. $\frac{6}{7}$ 2. $\frac{9}{12}$ 3. $\frac{13}{15}$

(C) 1. $\frac{3}{5}$ 2. $\frac{8}{7}$ 3. $\frac{9}{10}$ 4. $\frac{2}{12}$ 5. $\frac{9}{13}$ 6. $\frac{11}{15}$

EXERCISE 30

(1) i. $\frac{1}{3}$ ii. $\frac{2}{5}$ iii. $\frac{1}{6}$ iv. $\frac{3}{8}$ v. $\frac{2}{7}$
vi. $\frac{2}{9}$ vii. $\frac{5}{10}$ viii $\frac{4}{13}$ ix. $\frac{5}{11}$ x. $\frac{7}{12}$
xi. $\frac{1}{15}$ xii. $\frac{5}{18}$

(2) i. $\frac{1}{4}$ ii. $\frac{11}{14}$ iii. $\frac{1}{19}$

(3) i. $\frac{2}{7}$ ii. $\frac{7}{9}$ iii. $\frac{1}{10}$ iv $\frac{7}{13}$ v. $\frac{4}{11}$
vi $\frac{6}{17}$ vii. $\frac{6}{25}$ viii. $\frac{1}{19}$ ix. $\frac{3}{15}$

ANSWERS

EXERCISE 31

(1) ii. 3cm   iii. 7cm   iv. 10cm   v. 8cm

(2) ii. ✓   iii. ✓   iv. ✗   v. ✗   vi. ✓

(3) i. centimetre   ii. centimetre   iii. Centimetre
iv. metre   v. metre

EXERCISE 32

(A) 1. 88   2. 122   3. 43   4. 12m 74cm
5. 14m 99cm   6. 47km 951m

(B) 1. 89cm   2. 27m   3. 4km   4. 22m 35cm

EXERCISE 33

1. 98cm   2. 345m   3. 335km   4. 1585km

EXERCISE 34

(A) 1. 39cm   2. 29km   3. 18m
4. 22km 32m   5. 18km 22m   6. 29km 178m

(B) 1. 40cm   2. 3m   3. 7km
4. 186m   5. 72km 174m

EXERCISE 35

1. 15m wire   2. 25cm lace   3. 634m ribbon   4. 2m 28cm

EXERCISE 36

(1) (i) g   (ii) kg   (iii) kg   (iv) g
(v) g   (vi) kg   (vii) g   (viii) kg

(2) (ii) kg   (iii) g   (iv) kg   (v) g   (vi) g

EXERCISE 37

(A) (1) 595 g (2) 817 g (3) 802 g (4) 81 kg
(5) 3667 kg (6) 81221 kg

(B) (1) 550 g (2) 1023 kg (3) 1275 g (4) 7797 g

EXERCISE 38

(1) 600 g spices (2) 20 kg flour (3) 59 kg cotton (4) 15 kg vegetables

EXERCISE 39

(A) (1) 1 kg (2) 114 kg (3) 159 g (4) 379 kg
(5) 111 kg (6) 589 g

(B) (1) 252 g (2) 253 kg (3) 220 g (4) 8 kg
(5) 220 g (6) 80 kg

EXERCISE 40

(1) 15 kg onions (2) 100 kg rice (3) 1450 kg iron (4) 22 kg more

EXERCISE 41

(A) (1) 280 $m\ell$ (2) 3 ℓ (3) 500 $m\ell$

(B) (2) 5 $m\ell$ (3) 100 ℓ (4) 50 $m\ell$ (5) 200 $m\ell$

EXERCISE 42

(A) (1) 858 $m\ell$ (2) 1020 $m\ell$ (3) 999 ℓ
(4) 1000 ℓ (5) 1665 $m\ell$ (6) 5 ℓ 769 $m\ell$

(B) (1) 495 $m\ell$ (2) 1355 ℓ (3) 5 ℓ 990 $m\ell$ (4) 59 ℓ 825 $m\ell$

EXERCISE 43

(1) 550 $m\ell$ (2) 33 ℓ (3) 3365 ℓ (4) 925 ℓ 900 $m\ell$

EXERCISE 44

(A) (1) 125 $m\ell$ (2) 461 ℓ (3) 2174 ℓ
(4) 241 $m\ell$ (5) 88 $m\ell$ (6) 15 $m\ell$

(B) (1) 115 $m\ell$ (2) 440 ℓ (3) 180 $m\ell$ (4) 110 ℓ

EXERCISE 45

(1) 330 $m\ell$ oil (2) 42 ℓ petrol (3) 15 ℓ water (4) 650 ℓ milk

EXERCISE 46

(1) (ii) 5:45 p.m (iii) 3:00 p.m (iv) 4:30 a.m
(v) 5:55 p.m (vi) 11:40 p.m (vii) 2:30 p.m
(viii) 1:45 a.m (ix) 10:45 p.m

(2) (ii) 3:45 p.m (iii) 10:30 p.m (iv) 1:45 a.m
(v) 6:30 a.m (vi) 3:45 a.m

(3) (ii) Quarter past 7'o clock in the evening.
(iii) Half past 6'o clock in the morning.
(iv) Quarter to 10'o clock in the night.

EXERCISE 47

(2) 10:35, 35 past 10
(3) 8:30, 30 past 8
(4) 1:15, 15 past 1
(5) 9 past 25 in the morning
(6) 11 past 30 in the morning
(7) 3 past 40 in the afternoon
(8) 5 past 15 in the evening

EXERCISE 48

(A) (1) Sunday (2) Thursday
(3) Monday (4) Saturday
(5) Sunday (6) Sunday

(B) (1) Sunday (2) Thursday (3) 4
(5) January, March, May, July, August, October, December
(6) Wednesday

EXERCISE 49

(A) (1) 7 hours (2) 29 hours (3) 41 hours
(4) 50 hours (5) 61 hours (6) 62 hours

(B) (1) 54 hours (2) 28 hours (3) 225 hours
(4) 260 hours (5) 708 hours (6) 822 hours

EXERCISE 50

(1) 17 hours (2) 121 hours (3) 7 hours (4) 9 hours

EXERCISE 51

(A) (1) 1 hour (2) 5 hours (3) 4 hours
(4) 15 hours (5) 19 hours (6) 10 hours

(B) (1) 6 hours (2) 42 hours (3) 20 hours
(4) 105 hours (5) 237 hours (6) 417 hours

EXERCISE 52

(1) Car is faster, 2 hours (2) 7 hours (3) Azeem, 4 hours more
(4) B, 6 hours more (5) 2 hours, 30 minutes

EXERCISE 53

(1) (b)
(2) (a) M, N (b) P
(3) $\overline{PQ}$ or $\overline{QP}$
(4) G
(5) $\overline{AB}$, $\overline{AD}$, $\overline{AE}$, $\overline{AC}$
(6) $\overrightarrow{PQ}$, $\overrightarrow{QR}$, $\overrightarrow{PR}$

EXERCISE 54

(1) (i) Triangle (ii) Square (iii) Rectangle
(3) (i) Square (ii) Triangle (iii) Rectangle
(iv) Square (v) Rectangle

EXERCISE 56

(1) 18 cm (2) 16 cm (3) 15 cm (4) 152 cm (5) 250 cm

EXERCISE 57

(A) (1) 55 (2) 1^{st} day (3) 3^{rd} day (4) 90 (5) 20
(B) (1) 4 (2) 36 (3) 4 (4) 6 (5) Rabbits (6) Elephant
(C) (1) Cars (2) Buses (3) 4 (4) 6 (5) 18 (6) 8